THE BUILDER

INCORPORATING

'ARCHITECTURE' AND 'THE BRITISH ARCHITECT'

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BUILD OR RESTORE?

WHAT is to be done about historic buildings that are demolished or badly damaged by air bombardment? The recent spate of correspondence in the public Press on the subject of the damaged City churches shows not only that deep concern is felt as to the fate of these buildings but that a great diversity of opinion exists as to the course of action to be taken with regard to them. Some writers have urged that the churches should be rebuilt exactly to the original designs; others that they should be replaced by entirely new buildings expressive, in design and construction, of our own time. One writer has gone so far as to suggest that where a City clearance is necessary to facilitate re-planning, an old church site should be "profitably secularised on the one condition that an adequate sum be set aside for, or towards, the rebuilding of the church itself in some provincial city or town that has honourable scars to be healed or where a worthy and permanently secured island site can be made ready for it."

As to this suggestion, apart from the doubtful morality of uprooting an old building and transporting it elsewhere, most of Wren's City churches were designed for awkward, congested sites and would look out of place if planted down on an island site.

Mr. Goodhart-Rendel in a broadcast talk on "Build or Restore," extracts from which were published in our last issue, came out strongly against rebuilding. "How that great man [Wren] would laugh," he said, "if he returned to this world and caught us piously rebuilding his hastily designed churches in forms that for a 100 years had been found increasingly inconvenient." Mr. Goodhart-Rendel added that if a building whose design we believe to be so perfect in itself as to be worth carrying out in new materials at any period should be destroyed, we must ask ourselves before reproducing it whether we should have been completely satisfied with that design if it had been submitted by a modern architect and we had never known the old building. "If we cannot answer yes to this question," continued Mr. Goodhart-Rendel, "we ought to shed a tear for what has gone, and then put something frankly new in its place. If we *can* answer yes to it, if we can adopt the old design with the conviction that for our purposes there could not be a better, we shall, of course, use materials and workmanship that are visibly of our own time. We shall avoid every form of 'fake' since, like a human being, a building that is born old is nothing but a horrid deformity."

That appears to be the logic of the position and if we act accordingly then very few old buildings are likely to be rebuilt. But shall we? Even Mr. Goodhart-Rendel does not appear to think so, for he added: "It [the nation] wants better planning for traffic, better looking streets, and better placing of commercial and domestic buildings than it has had heretofore. But it also wants as many as possible of the pubs and shops it used to know, and, above all, every man wants his town or village—however improved—to be the old place after all."

It appears to us to be difficult to generalise profitably about this problem. There are likely to be a hundred and one different cases for consideration and each will have to be dealt with on its merits. With our love of the familiar and disinclination to scrap anything that is still functioning reasonably well, it may be supposed that any building that is not too badly damaged to be repaired for further useful service will stand a chance of survival. The controlling factor would seem to be that of replanning. If an old and/or valuable building, whether damaged or not, stands in the way of the improved planning that bombing has made possible, then it may have to go.

One thing we have noted particularly in the recent correspondence is the belief that many people hold that there is some elusive quality about historic buildings that cannot or ought not to be recovered. Where the work is original that may be so, but how often is it original? Many of our historic buildings are by no means entirely original work. Most of our mediæval cathedrals have been entirely refaced and in other ways altered since they were first built. Wren himself refaced the north transept of Westminster Abbey, which was afterwards re-refaced by Pearson. Scott practically rebuilt the chapter house. The Banqueting Hall, Whitehall, that we see to-day is not Inigo Jones's work at all. The building had fallen into such a state of dilapidation in the early part of last century that Soane, called in to advise upon it, decided to recase it entirely. The interior was refitted by Smirke. Yet if the Banqueting Hall were to be demolished there would be many who would say that it must not be rebuilt because it is unethical to imitate the work of the seventeenth century—which, of course, has long since disappeared! Inigo Jones's St. Paul's, Covent Garden, to take another example, was destroyed by fire in 1795, and was rebuilt by Thomas Hardwick. Yet we are not conscious of any loss of architectural quality. Indeed, we are glad to have it as it is because it *is* a copy of Jones's design. There is sometimes merit in design considered purely as design, and when it can be retained without detriment to the practical requirements there is a real educational benefit in retaining it. "This," we can say, "was not actually carried out by X's craftsmen but it is X's design."

We do not press the point too far, but suggest that there is some merit in preserving the remains—even the semblance—of our architectural heritage wherever it is possible to do so without making ourselves look foolish. The whole problem needs thorough investigation. The Archbishops have already given a lead by setting up a Commission on Damaged or Destroyed Churches to advise, *inter alia*, with regard to the restoration or rebuilding of churches, etc., damaged by enemy action. Some competent authority should undertake a similar work on behalf of secular buildings. The need is urgent.

RAID DAMAGE TO LLANDAFF CATHEDRAL.

Llandaff Cathedral was among buildings damaged during a recent raid on Cardiff. The whole of the nave on the south side was unroofed from end to end and all the windows, including the fine central window in the West Front, were blown out. The interior of the cathedral suffered severely and the roof of the Chapter House (on the right of the picture) was also destroyed. Fortunately, twelve of the stained glass windows, including those designed by William Morris, Burne-Jones and Ford Madox Brown, had previously been removed to safety. Much damage was done to the Cathedral School, to St. Michael's Theological College, the Deanery and Canonry and other ecclesiastical property.

NOTES AND NEWS

Expert Committee on Compensation.

LORD REITH, Minister of Works and Buildings, announced in the House of Lords last week the formation of a committee to make an objective analysis of the subject of the payment of compensation and recovery of betterment in respect of public control of the use of land; and to advise, as a matter of urgency, what steps should be taken now or before the end of the war to prevent the work of reconstruction thereafter being prejudiced. Membership of the committee is: Mr. Justice Uthwatt (chairman), Mr. Gerald Eve, P.-P.S.I., Mr. James Barr, Mr. F. R. Evershed, and Mr. James Wylie.

The Minister's speech will be found "In Parliament," on page 159.

Redevelopment of Coventry.

COVENTRY City Council, on January 25, adopted the report of the deputation which visited Lord Reith, Minister of Works and Buildings, on January 8, to discuss the redevelopment of the city.

The report shows that Lord Reith, after a personal visit to Coventry, advocated a wide outlook on the situation, and agreed with town-planning experts of the Ministry of Health that town planning was not practicable or appropriate in such a case. It was the intention of the Government to introduce special legislation, and, to provide a basis for this, it would be convenient to take Coventry and one or two other towns as test cases and to make an investigation of the local problems arising in order to define and classify them.

Lord Reith also agreed that any interim action which might prejudice the proper ultimate redevelopment was very undesirable. He pointed out that the financial side of the redevelopment question affecting towns like Coventry was under inquiry by the Government.

The Emergency Committee reported that the Regional Commissioner had made a verbal statement to the effect that the Ministry of Works and Buildings would deal with labour for, and the financing of, building and reconstruction, and that, subject to a Cabinet confirmation, the council might expect 100 per cent. reimbursement of the burden imposed on it as a consequence of the raid.

Lancs County Architect's Impending Retirement.

THE impending retirement is announced of Mr. Stephen Wilkinson, A.F.C., F.R.I.B.A., County Architect for Lancashire since 1927. Mr. Wilkinson has had a full and adventurous life, having followed his profession in many parts of the world—in China and the Far East, and in India. He saw active service in two wars—the Boxer Rebellion of 1900, after which he received the China Medal, and the Great War, in which his services as pilot and instructor in the R.F.C. gained him the Air Force Cross.

Mr. Wilkinson estimates the total cost of his executed works in Lancashire to amount to over £4½ millions. This takes no account of many buildings erected to his designs in China and India, or those erected during his tenure from 1919-1927 of the post of Chief Architect to the L.N.E.R. at York. Many of the important buildings erected in Lancashire have been honoured by representation in the Royal Academy.

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Mr. Wilkinson is a past member of Council of the R.I.B.A., and past-president of the York and East Yorks Architectural Society. He maintains his interest in flying, and until its disbandment on the outbreak of war was C.O. of the Civil Air Guard at Blackpool. His many friends will wish him well on a well-earned rest.

Mr. L. Evans, Deputy Architect, has been appointed Acting County Architect, to date from April 23, when Mr. Wilkinson will retire.

Protection of London's Open-Air Statues.

IN a written Parliamentary reply to Sir R. Gower (Gillingham, U.), Mr. G. Hicks, M.P., said: Of the open-air statues in London, those of Charles I by Le Sueur, Charles II by Grinling Gibbons, and George II by Rysbrack, have been protected, and James II by Grinling Gibbons has been removed to a place of safety. In addition, the statues of William III by Bacon, George III by Wyatt, and The Burghers of Calais by Rodin, are to be protected. Having regard to the urgent calls by A.R.P. on labour and materials, it is necessary strictly to limit the statues to which protection can be applied.

∴ Mr. Hicks's statement refers naturally only to those statues under the control of the Ministry of Works and Buildings.—ED.

Rebuilding London After the Great Fire.

AT the ordinary general meeting of the Architectural Association, to be held on Tuesday, February 18, at 2.15 p.m., Mr. T. F. Reddaway, M.A., F.R.Hist.S., will speak on "The Rebuilding of London after the Great Fire."

IN 1916.

FROM *The Builder*, FEBRUARY 4.

THE KAISER'S VILLA.—Telegraphing from Corfu, the *Petit Parisien* correspondent says: "I visited yesterday Achilleion, the Kaiser's villa. It is needless to describe this work of art, or the bad taste shown in the Berlin handling of this Italian style residence, or the Imperial bathroom, where the statues are so arranged that they seem to be washing their feet in the water, or the colossal statue of Achilles, of a chocolate zinc colour, erected in the gardens with an inscription proclaiming William II as the Emperor of the world."

CORRESPONDENCE

[While we are glad to publish letters on professional and other matters of interest to our readers, it must be understood that we do not necessarily endorse the remarks of correspondents, who will oblige us if they will express their views as briefly as possible.]

Unlawful Use of the Title "Architect."

TO THE EDITOR OF *The Builder*.

SIR,—The letter of the Registrar of the Architects Registration Council of the United Kingdom in your last issue contains statements which require elucidation.

He says "architects themselves are not allowed to advertise and may be struck off the Register for doing so," and "the attention of my Council was, in fact, drawn to the present case by an architect in the neighbourhood who had himself been severely reprimanded for advertising."

Under the Act a person's name can only be removed from the Register for a criminal offence or for "conduct disgraceful to him in his capacity as an architect" after an inquiry and report to the Council by the Discipline Committee appointed under the Act.

I therefore ask the Registrar the following questions:—

1. Have the Discipline Committee reported to the Council in any case referred to them that advertising by a person whose name is on the Register is "conduct disgraceful to him in his capacity as an architect"?

2. From whence does the Council derive the power to "reprimand or otherwise deal with" a person whose name is on the Register?

If the answer to question 1 is in the affirmative I am quite satisfied.

With regard to question 2, whilst it may be desirable to "reprimand or otherwise deal with" a person whose name is on the Register, the Council must show that they have power under the Act to do so. They are a statutory body.

CHARLES WOODWARD.

10, Gray's Inn-place, W.C.1.

A Maximum Lifetime for Buildings.

TO THE EDITOR OF *The Builder*.

SIR,—I noticed in the daily Press a statement made by Coventry's city architect to the effect that he considered post-war building should be designed to last no longer than 30 years.

This is perhaps more revolutionary than my own opinion. As a builder I have for years past advocated that our building laws regarding domestic buildings should be relaxed to allow cheaper construction with a maximum lifetime of 50 years.

Every Londoner knows how depressing most of the middle-class residential districts of the 'nineties are at the present day. All the large houses have been converted, more or less, into tenements which can hardly be referred to as the "castle" usually associated with the Englishman's home.

Might I suggest that architects, town-planning experts, and those who compile our building laws, study and think about the concrete hut illustrated in *The Builder* for January 17.

This form of construction presents to me great possibilities in the future, exterior decoration and facing being a matter to suit the pocket of the individual owner.

I, for one, would be willing to co-operate with any architect or local authority willing to take the plunge.

ASHTON PARSONS.

Reservation of Architects.

To the Editor of *The Builder*.

Sir,—The statement on the reservation of architects made by the R.I.B.A. and printed in your issue of January 3 gave a summary of the various changes that have taken place since the beginning of the war. It said, in conclusion: "However, at the end of 1939, architects were removed from the schedule altogether, and were thus free to enlist in any of the armed forces if they so desired." The report of the A.A.S.T.A. deputation to the Ministry of Labour and National Service made it clear that one body in particular was responsible for this extremely stupid move.

It was at one of the last R.I.B.A. general meetings that a young architect suggested that the idea in the heads of the powers in the profession was that if the younger men could be "shot off" there would then be enough work for the old. He himself, although he has not been "shot off," has now at least been seriously injured in health. Can his supposition have been correct?

H. R. Simmons.

Haverstock Hill, N.W.3.

Standardisation in Architecture.

To the Editor of *The Builder*.

Sir,—Your correspondent Mr. C. G. Jacobs' letter in last week's *Builder* can hardly be considered an argument, for it is only by the clash of ideas that any firm policy can be arrived at. He simply repeats my letter, but if he disagrees with the main thesis of this let him state the case for standardisation in clear terms. As Voltaire so aptly said: "I do not agree with what you say, but will defend to the uttermost your right to say it." This is the very essence of freedom.

As for discipline in architecture, this seems to be irrelevant, and I venture to suggest that there will be a wholesome reaction once this war is won and over against all forms of petty tyranny. At present our war cry is "United we stand," and nothing can come in the way of defeating the Hun and all his horrible attempts to standardise the human soul. To-day we are not civilised, but paralysed, yet out of this organised chaos the free spirit of man will surely triumph over all his present and future difficulties. If your correspondent reads his history he will learn that Danton was one of the liberators of France from a corrupt feudal system, and gave his life in that great cause. Standardisation could have had no place in *his* life.

Finally, as Mr. Jacobs says that he prefers death to liberty, the only thing left for him to do is to apply to the Government for a standardised coffin and be buried in a standardised grave!

J. E. Rhind, A.R.I.B.A.,
Dipl.Arch.(Aberdeen).

Weybourne, near Farnham,
Surrey.

Richard Norman Shaw.

To the Editor of *The Builder*.

Sir,—The name of Shaw's pupils referred to in my study of Shaw (*The Builder*, January 31, p. 125) was not "the Nursery," but "the Family." Would you please correct this in your next issue.

Reginald Blomfield.

51, Frognal, Hampstead.

Changes of Employment.

To the Editor of *The Builder*.

Sir,—It is remarkable that war corrects many defects that all the efforts of reformers in peace time cannot accomplish. In the last war there was much reorientation, but not comparable to that of this. The British people, like some other peoples, are being classified at last, so that every ounce of energy or skill shall find its appropriate application. With the crisis has come the man. The experience that Mr. Bevin had acquired in Trade Unionism, not only of things as they are but of things as they ought to be, had prepared the way for the exercise of great organising abilities. It will be shown presently in two spheres. The dockers will get a new charter. Their struggles as casuals will cease. Their labour will be pooled and changed by rapid transit as occasion demands. So will end the unedifying chapter of their struggle to live. The change will react favourably on all trades.

Scarcely less complete is the coming change in building activities. Building employees are to be directly employed by the Ministry of Building, and a similar pooling plan will be adopted.

So I expect it will be with professional men. No architect or surveyor should stand with his hands in his pockets. If there is no work for him in his own sphere he should be switched on to another. No tradition, habit or custom should prevent for a moment a man's occupation being temporarily or even permanently changed.

I foresee great changes yet to come for the successful issue of the war, and I advise professional institutions to be prepared for a new basis which they have hitherto viewed with disdain. It may bring with it the cessation of wasteful tendering and the competitions for designs, which private enterprise has found no means of exercising. It may bring with it the end of that ruinous competition for work which Sir Alfred Hurst sought to modify. By the creation of bodies of Government officials, the ascendancy of these may take over the control of those institutions whose policy in the past has been selfishly dictated by private practitioners. It may lead to the fusion of societies with the same objects. It may take over some bodily.

I have said enough to make councils alert. Many can "discern the face of the sky," but they cannot discern "the signs of the times."

A. W. Crampton, F.S.I.

Mansfield, Notts.

Structural War Damage.

To the Editor of *The Builder*.

Sir,—Although Mr. Ansell, the President of the Royal Institute of British Architects, advised the owners of property to obtain measured drawings of buildings that might be used as a record in the event of war damage taking place, I understand that in the majority of cases no steps were taken in the matter.

There is, however, a way in which invaluable evidence regarding burnt-out buildings may be obtained. I refer to the possibility of constructing drawings from photographs, with the assistance of the angular "perspective charts," devised by Mr. John Swarbrick, F.R.I.B.A., of 1, King's Bench-walk, Temple, for use in connection with the photo-theodolite, for which he obtained a patent. I have examined the angular grilles, known as "perspective charts," which have been mathematically constructed with great care for use in connection with this instrument, and find that by using them in a proper way it is possible, with the assistance of suitable photographs, to construct reliable drawings that could be used in connection with the preparation of claims for compensation.

J. Wilfrid Jackson,
D.Sc., F.G.S., F.S.A.

The Manchester Museum.

COMING EVENTS

Saturday, February 8.—Institution of Structural Engineers (Yorkshire Branch). Mr. J. Singleton-Green, on "The Possibilities of Limestone as an Aggregate for Concrete." Hotel Metropole, Leeds. 2.30 p.m.

Wednesday, February 12.—Institution of Structural Engineers (Scottish Branch). Sessional Meeting. At Glasgow. 5.45 p.m.

Electric Heaters in Shelters.

To the Editor of *The Builder*.

Sir,—In the article by Mr. R. Cotterell Butler, A.R.I.B.A., in *The Builder* of January 10, on page 33, it is stated:—

"All combustion consumes oxygen . . . and every endeavour should be made to use a heating system which does not use valuable air. An electric heater, provided the supply installation is carefully arranged, and *is not of the exposed element type*, is satisfactory from this point of view.

Would Mr. Butler describe the physics of combustion and the destruction of oxygen by exposed electric elements in air alone, accompanying his description by a detailed calculation of the amount of combustion of oxygen by a 2.0-kw. element in air alone at an operating temperature of 900 deg. C. where the free flow of air across the element is 200 ft. per minute, with an estimate of the weights of the products of combustion and the nature of those products, as compared with the amount of oxygen consumed by a coal fire consuming 3.0 lb. per hour and a gas-fire consuming .125 therm per hour with solid or gaseous fuel of any specification he may care to take.

I would, further, ask him to provide references to any research or papers on "the combustion of oxygen by exposed electric elements" lending support to his inference "that exposed elements are *unsatisfactory* from this point of view."

It would be of interest to learn the combustion temperature of air.

S. B. Jackson.

37, The Ridgeway, W.3.

Mr. Cotterell Butler writes:—

The heat from an electric fire is not, of course, produced by the element burning! The statement "provided the supply installation is carefully arranged, *and is not of the exposed element type*" refers to the danger of short-circuits and fire (under shelter conditions)—a point which is stressed wherever electric installations are mentioned in the article.

From a scientific standpoint an element oxidising may be said to combust. Similarly, combustible impurities in the air surrounding a heated element may be raised to their cumbustion temperature. In practice, the loss of oxygen which could be attributed to either of these actions is negligible.

Combustion is reciprocal. At "room temperature" a jet of air will burn in an atmosphere of a combustible gas.

*** A letter on "Protection of Buildings Against Fire," will be found on page 161.

WAR-TIME BUILDING PRACTICE

By R. Cotterell Butler, A.R.I.B.A.

42.—SHELTER PROTECTION.

"THE DISPERSAL THEORY."

A GREAT deal of unnecessary controversy has taken place over the value or otherwise of basing shelter policy on the principle that a population is safer (all other factors being equal) if it be dispersed rather than concentrated. That a large measure of official policy has been based on this principle is well known, and, furthermore, that this has from time to time come in for more than a little criticism.

Before examining the case for dispersal it is necessary to point out that the question is not that of deep shelters or surface shelters in spite of the fact that dispersal schemes are almost invariably associated with the lower standards of structural protection. If some clarification of the issue is to be obtained, it is necessary to approach the principle of dispersal as a mathematical factor before attempting to summarise either its practicable applications or the results of such modifications as must be introduced in view of practical considerations.

RANDOM BOMBING.—A major part of the case for dispersal hangs on the question of whether or not the attacks to which any given population is subjected may truly be said to represent a random scattering of missiles from all practical points of view. If in any specific instance it is possible to agree upon this, the general mathematical laws governing questions of probability may be used to examine the problem. Otherwise this cannot be the case.

AIMED ATTACK.—Animals living under natural conditions act on conditioned reflexes which in some cases cause them to scatter as soon as attacked, and in others to herd together. While open to correction by the professional zoologist, it would appear reasonable to infer that where a possibility of retaliation presented itself the tendency would be to herd; where the odds appeared too great it would be natural to scatter. Many animals when shot at by gun or rifle immediately scatter, probably partly as a conditioned reflex making them try instinctively to get as far as possible away from the cause of their fright and partly to take full advantage of the cover afforded them singly. Similarly, in open warfare a column of men attacked are taught instantly to deploy, mainly, it is assumed, to reduce their target value.

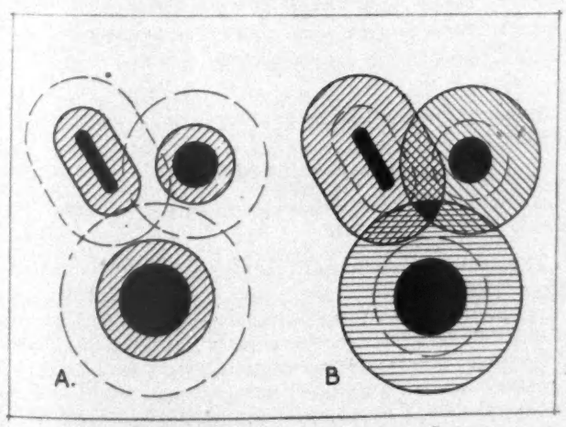


Diagram 1.—EFFECTIVE *and* INEFFECTIVE DISPERSAL. (Efficacy of dispersal depending on calibre of bombs under consideration.

A. *Effective Dispersal.* Bombs dropping within danger area of one shelter are outside danger areas of other shelters.

B. *Ineffective Dispersal.* Same shelter arrangement as "A" but heavier calibre bombs assumed. Danger areas intersect, and a bomb dropping in the intersecting areas will cause casualties in more than one shelter.

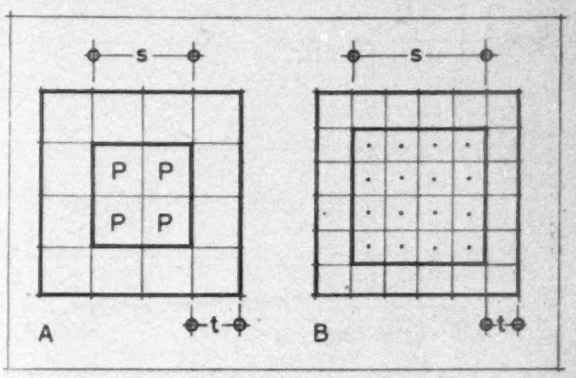


Diagram 2.—BASIC DIAGRAMS FOR CALCULATING PERIMETERS OF SHELTERS A and B (holding four and sixteen persons respectively). Wall thicknesses (*t*) are the same in both cases.

Where the number of missiles which may be aimed at the men within the time limitations introduced are strictly limited, the scattering tends to prevent as many being killed as would be the case were they to remain concentrated.

Where shelters are objectives, open to low-flying attacks by aircraft aiming at them, it is possible by building on a dispersal principle both to reduce the target presented to, and certainly the number who could be hit by any one bomb.

THE PRINCIPLE OF DISPERSAL.

In the following notes an attempt has been made to summarise the factors arising out of the principle of dispersal, according as to whether they occur as purely mathematical or as practical considerations.

(*a*) *Dispersal does not reduce or increase the possibility of any given bomb—released at random over an area—striking any given person.* For this statement to be correct it is essential that the bomb be released *at random* over the area, otherwise other factors are introduced, and the bomb ceases to behave according to the laws of chance. It may be realised that, whether or not the given individual is one of a group, this does not affect the question of his chance of standing on the precise position on which the bomb is to fall.

(*b*) *Provided the dispersal is effective, it does reduce the maximum number of persons who may be killed by any single bomb.* This is apparent since one bomb, unless the dispersal is not effective, obviously cannot kill more persons than were concentrated so closely that all were within range from the same explosion. (See Diagrams 1*a* and 1*b*.)

(*c*) *Dispersal increases the possibility of any given bomb falling at random causing at least one casualty.* By increasing the distribution of the population, fewer points occur in the area at which a bomb may fall and be beyond the effective distance to cause damage.

(*d*) *Since with random bombing* (*b*) *and* (*c*) *are true, dispersal tends to reduce the chance of many casualties in any one area and few in others, thus encouraging a more even distribution of casualties.* The importance of this is a

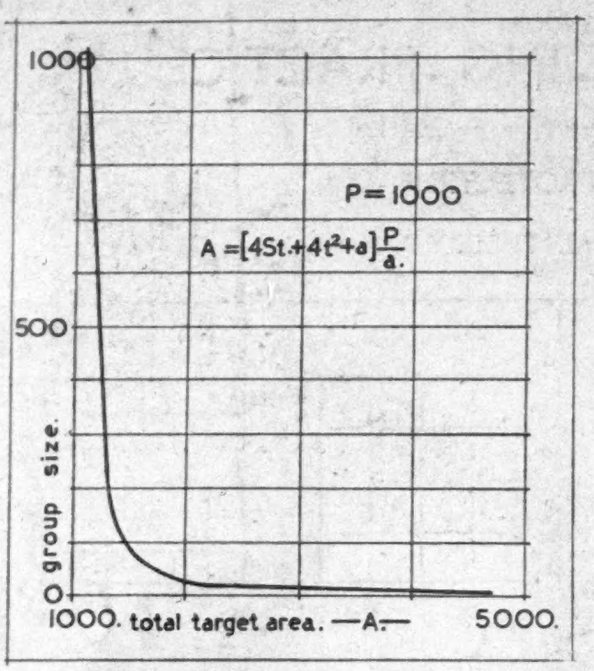


Diagram 3.—GRAPH SHOWING EFFECT OF DISPERSAL ON THE TARGET AREA PRESENTED BY A POPULATION (accommodation area + shelter structure).

practical one, since it is thus obvious that by dispersal the strain imposed on first-aid posts is spread more evenly over the organisation, and similarly the reduction in possibility of many casualties in one area against none in others would appear to have advantages from the point of view of maintaining war-time moral.

(*e*) *Dispersal neither increases nor decreases the net area presented by the bodies of the population of the given area to bombs falling at random, except where compared with vertical massing.*

(*f*) *Dispersal does increase the net area of population plus shelter-structure presented to bombs falling at random.* While the superficial area per unit of population remains constant, the net area presented by persons plus shelter-structure is increased as the size of individual groups of persons is decreased.

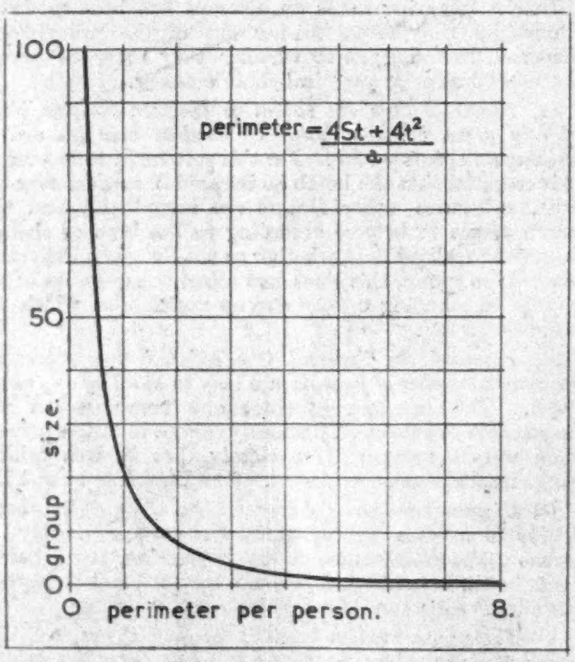


Diagram 4.—GRAPH SHOWING EFFECT OF DISPERSAL ON STRUCTURAL PERIMETER OF SHELTER PER PERSON (calculated for square shelter as in "3.")

Diagrams 2*a* and 2*b* represent two shelters; (*a*) has accommodation for four persons, and (*b*) (drawn to a smaller scale) has accommodation for 16 persons. The perimeter required to enclose 16 persons in one shelter is much less than four times that required for a shelter holding four persons. Provided it is assumed that the structural protection for all shelters is represented by the same thickness of surrounding wall equal in resistance to explosions, the total target area (A) of a square single-storey shelter may be represented by the formula:

$$A = 4St. + 4t^2 + a$$

where a = accommodation for persons in sq. units.

$s = \sqrt{a}$ (length of one side).

t = thickness of surrounding structural protective wall.

Thus in case of a shelter for 4 persons, assuming that 1 sq. unit is required as accommodation for each person and t is also 1, the total target area of this shelter is:

$A = 4.2.1 + 4.1 + 4 = 16$ units super.

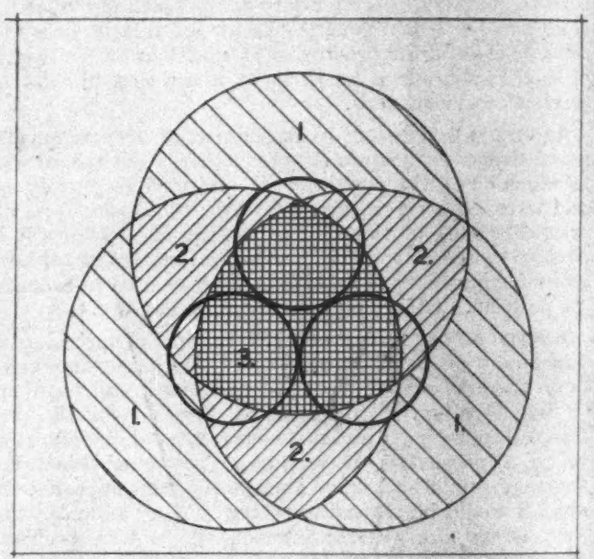


Diagram 5.—INTERSECTING DANGER AREAS OF GROUPED SHELTERS.

Areas 1. Bomb may cause casualties in one shelter only.

Areas 2. Bomb here may cause casualties in two shelters.

Areas 3. Bomb here may cause casualties in three shelters.

Similarly, under the same conditions, a shelter for 16 persons:

$A = 4.4.1 + 4.1 + 16 = 36$ units super.

Accepting these conditions (square plan shelter $t = 1$, and $a = 1$, per person),

The general relationship between the dispersal of a given population in a given area (represented by group sizes) and the nett target area represented by the total population plus shelter structure is indicated in Diagram 3 (graph). Many various relationships may of course be obtained where t is assumed to vary, and where the plan of the shelter is circular or rectangular, but the principle of the effect of dispersal on total target area will be similar.

(*g*) *Similarly to the above, the structure necessary to provide the same protection for a dispersed population is greater than a concentrated one.* Thus the perimeter necessary to enclose 16 persons in one shelter is less than that necessary for four groups of four persons. *In practice* the relationship

will not be as directly relative as in theory, since the length of a protective wall considerably affects its resistance to blast, and the greater the length of the wall the stronger it must be to present the same resistance. Therefore, the saving in perimeter of shelter walls will, in practice, be partly offset by the need for either increased thickness, cross walls or stronger material. Diagram 4 (graph) shows how this theoretical saving in perimeter for a square shelter would occur.

(*h*) *Where the bombing is assumed to be perfectly random, dispersal does not reduce the maximum number of persons who may be killed by any given intensity of bombs per unit area, provided the actual number of bombs dropped is not above a figure (see later), and the population density per unit area remains constant.*

Assume an area A, representing the district inhabited by a given population B. Assume 1,000 bombs are dropped *at random* over this area.

In case 1, we will assume that the whole of the population is grouped in one shelter, and one bomb only has to hit this shelter in order to cause every person to be a casualty. If we compare this with the same population in the same area grouped in small shelters, one bomb must hit each of the small shelters to cause the same number of casualties (assuming that such dispersal is possible that a bomb hitting one shelter cannot at the same time cause casualties in a second).

Now while the damage which one bomb may do in case 1 is many times as great as any single bomb may do in case 2, the total area within the population's district upon which a bomb must fall to cause casualties is reduced by the danger areas of the unit shelters overlapping when grouped together. (See Diagram 5.) A theorem showing the effect on the vulnerability of a population by grouping shelters provided random bombing of high intensity is assumed is shown in Diagram 6.

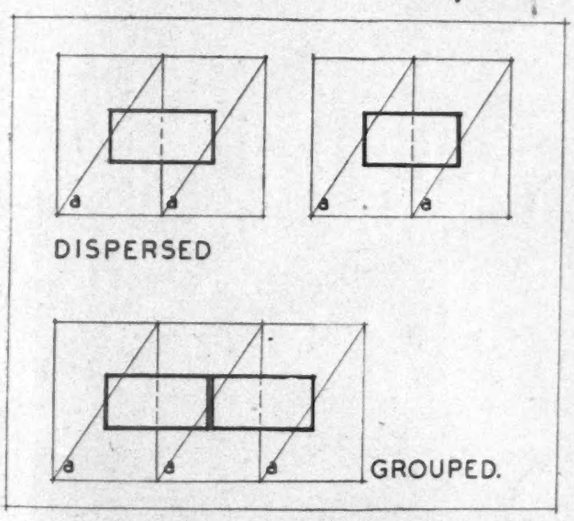


Diagram 6.—THEOREM SUGGESTING EFFECT OF GROUPING SHELTERS ON VULNERABILITY OF A POPULATION.

Assuming random bombing of high intensity. (See text).

Assume two shelters each having an area $2a$, the danger coefficient per unit area being the same in both cases (f) and Then the vulnerability (V) of case 1 (shelters dispersed) may be said to be represented by the population (P) multiplied by the danger coefficient of each area multiplied by the areas in question.

Thus in case 1 :

$$V = [(2a.f) + (2a.f)]\ P.$$
$$= 4afP.$$

By grouping the two shelters together so that the danger areas intersect (lower sketch) we have :

$$V = (2af + a_1 f_1)\ P.$$

Where a_1=intersecting areas having a danger coefficient twice as great as f.

It will be seen graphically that a_1 is equal to a.

Therefore assuming areas a = 10 units.
Danger factor per area (f) = 5 units.
Population (P) ... = 100

Then for the dispersed scheme :

$$V = 4 \times 10 \times 5 \times 100 = 20,000.$$

For the grouped scheme :

$$V = (2 \times 10 \times 5) + (10 \times 2 \times 5)\ 100 = 20,000.$$

V. under these conditions is, therefore, the same in both cases.

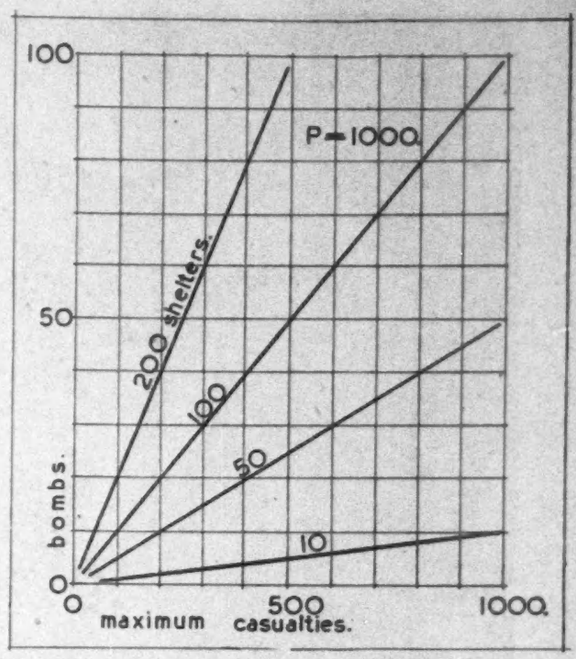


Diagram 7.—GRAPH SHOWING THE EFFECT OF THE GROUP SIZE OF A DISPERSED POPULATION ON THE MAXIMUM POSSIBLE CASUALTIES ACCORDING TO THE NUMBER OF BOMBS DROPPED ON THE AREA.

However, when the number of bombs dropped at random on an area is limited, dispersal has certain definite advantages. Assuming effective dispersal (when dispersed any one bomb can cause casualties in only one shelter) and assuming a constant population to be sheltered within a fixed distance, it may be seen that the relationship between the number of bombs and the number of persons per shelter determines the maximum number of people who *can possibly be killed* under these circumstances.

Diagram 7 illustrates this, and from the curves it may be seen that : (*i*) *Assuming random bombing, as long as the number of bombs dropped multiplied by the number of persons per unit shelter is less than the total population, a dispersal system guarantees less casualities (other factors being equal in both cases).*

In practice it is not necessary that the total number of bombs dropped multiplied by persons per unit shelter should necessarily be less than the total population to effect fewer casualities with a dispersed system than a focal one, since groups of bombs may be considered to have much the same effect as single bombs of a much larger calibre. The success of the practical application of this principle of dispersal depends, as has already been emphasised, on the existence or otherwise of what may for all practical intents and purposes be considered random bombing.

The extent to which random bombing may have been said to occur under present war conditions, with other practical considerations involved, will be discussed in the next article of this series.

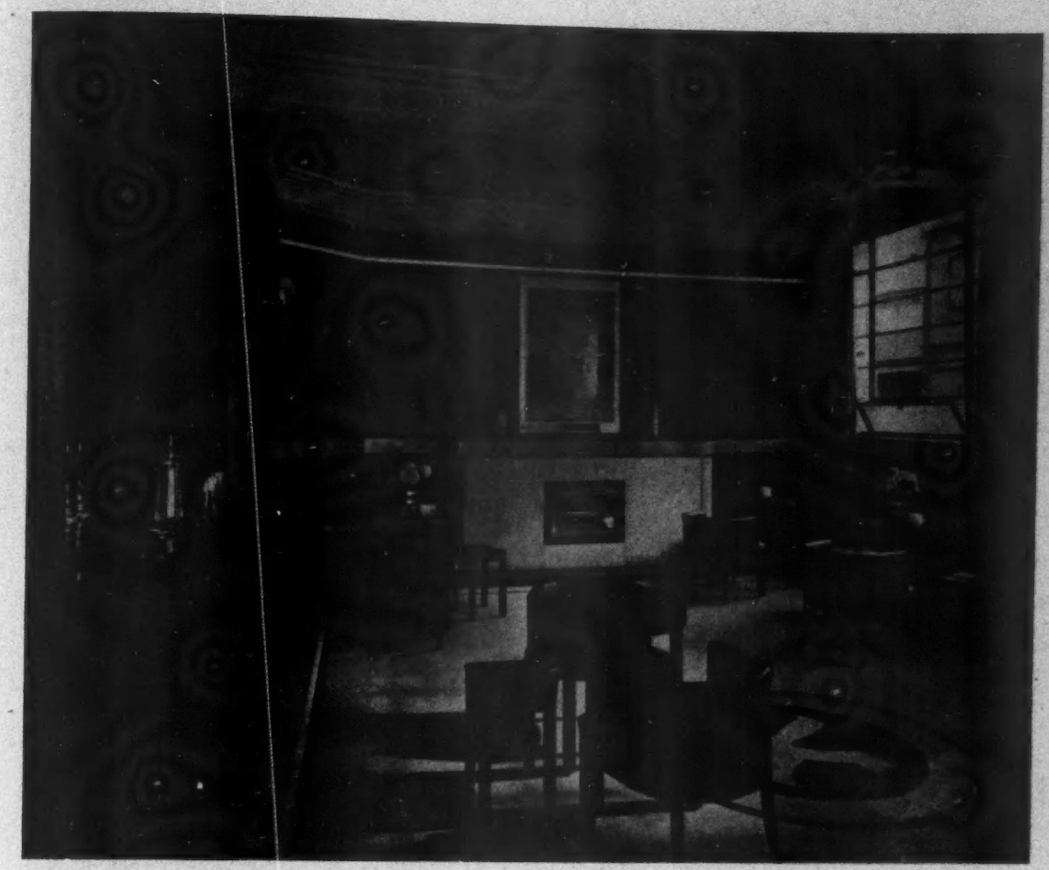
(To be continued.)

THE FALCON HOTEL, LINCOLN

MR. T. CECIL HOWITT, D.S.O., F.R.I.B.A., ARCHITECT.

THE building takes the place of the hotel previously existing in Saltergate. The plan is designed to take advantage of the maximum possible space for the public rooms on the confined site. Two principal entrances are arranged on the Saltergate front, one of which leads through a hexagonal vestibule to a lounge hall, from which access is made to the smoke room and lounge, and from which the main staircase leads to the first-floor public rooms. These comprise an ante room with a small bar which leads to the lounge and banqueting room which occupies the whole of the front of the building at first-floor level, and is equipped with a small stage and dressing-rooms, a bar and the necessary kitchen and service quarters. The whole of the second floor is occupied by the manager's accommodation.

The second entrance on the main front leads to a large public bar. The whole of the hotel has been



THE SMOKE-ROOM. *Below:* THE PUBLIC BAR.

THE FALCON HOTEL, LINCOLN. MR. T. CECIL HOWITT, D.S.O., F.R.I.B.A., ARCHITECT.

THE LOUNGE.

LOUNGE HALL.

THE FALCON HOTEL, LINCOLN. MR. T. CECIL HOWITT, D.S.O., F.R.I.B.A., ARCHITECT.

ANTE ROOM, FIRST FLOOR.

equipped on the most up-to-date lines and with the highest quality of decorative work. The vestibule, lounge hall and smoke room are panelled throughout in Australian walnut with silver-leaf decorations. In the lounge a particularly attractive treatment has been arranged in a special silver gilt panelling, picked out in vermilion. The effect is improved by strong indirect lighting from the decorative ceiling feature.

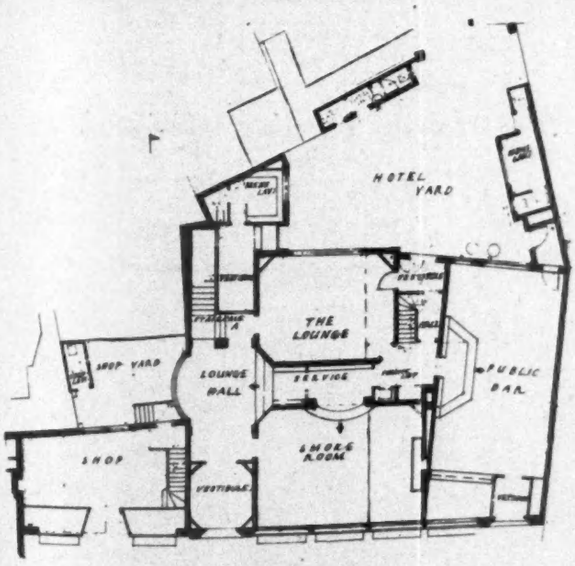
In the smoke room the central decorative feature is a large photograph of Lincoln Cathedral, built-in as part of the panel treatment. The club room has a panelled dado of light oak and colour is added by the attractive curtain treatment.

Special attention has been given in the building to the question of ventilation, which is mechanical throughout.

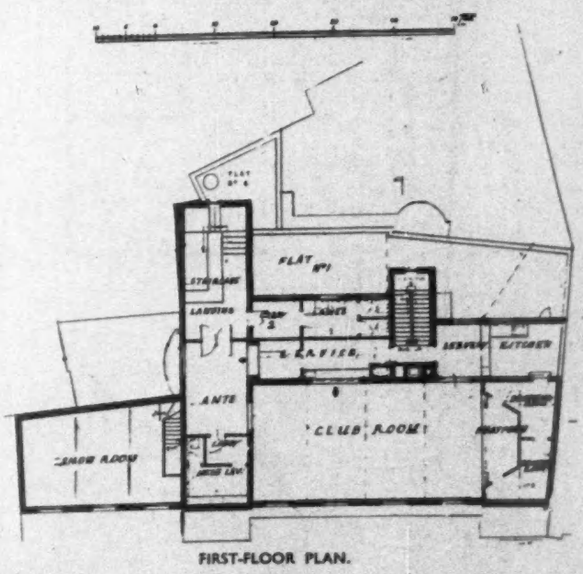
The elevations have been designed in stone-coloured brickwork to harmonise with the principal buildings in Lincoln, but in a modern treatment. The night effect of the front has been given special attention, the two main entrances being illuminated with the very latest treatment in neon lighting, in addition to a neon sign at second floor level Also the set back of the second floor is strongly flood-lit. This lighting is not now operative.

A particularly attractive effect has also been made by the provision of flower boxes on the sills of the ground floor windows and on the parapet of the second floor, and more colour is added by the brightly coloured sun-blinds to the four windows of the banqueting room. Two finely designed hanging signs, depicting a falcon motif, give colour to the front during the daytime.

Messrs. John Cawley, Ltd., of Leon Side, Nottingham, were general contractors, and sub-contractors were: Trent Concrete, Ltd., reconstructed stone staireases; Caxton Floors, Ltd., hollow-tile floors; J. Booth & Sons, Ltd., steelwork; Luxfer, Ltd., pavement lights; Young, Austen & Young, Ltd., heating and ventilation; Crittall Manufacturing Co., Ltd., steel windows; Birmingham Guild, Ltd., metalwork; Parker, Winder & Achurch, Ltd., sanitary fittings; General Electric Co., Ltd., neon installation; J. & S. Farr & Co., electrical works; Evans Lifts, Ltd., electric lift; J. Avery & Co., Ltd., sunblinds; The London Sand Blast Decorative Glass Works, Ltd., decorations to windows; H. H. Martyn & Co., Ltd., decorative joinery work; Lewis & Grundy, Ltd., metal gratings; Goodacre, Glover & Butler, Ltd., wrot-iron balustrade; Hollis Bros., Ltd., wood-block flooring; Hudson, Dodsworth & Co., Ltd., beer engines; Carter & Co., Ltd., wall and floor tiling; The Runnymede Rubber Co., Ltd., rubber flooring; Alfred Brown & Co., Ltd., ironmongery; Staines Kitchen Equipment Co., plate racks; General Electric Co., Ltd., electric light fittings; Mawer & Collingham, Ltd., curtains and linoleum; Gent & Co., Ltd., electric clocks; Pilkington Bros., Ltd., mirrors; Daymonds, Ltd., plastic lettering; and Henry Barker, Ltd., public bar seating.



GROUND-FLOOR PLAN.

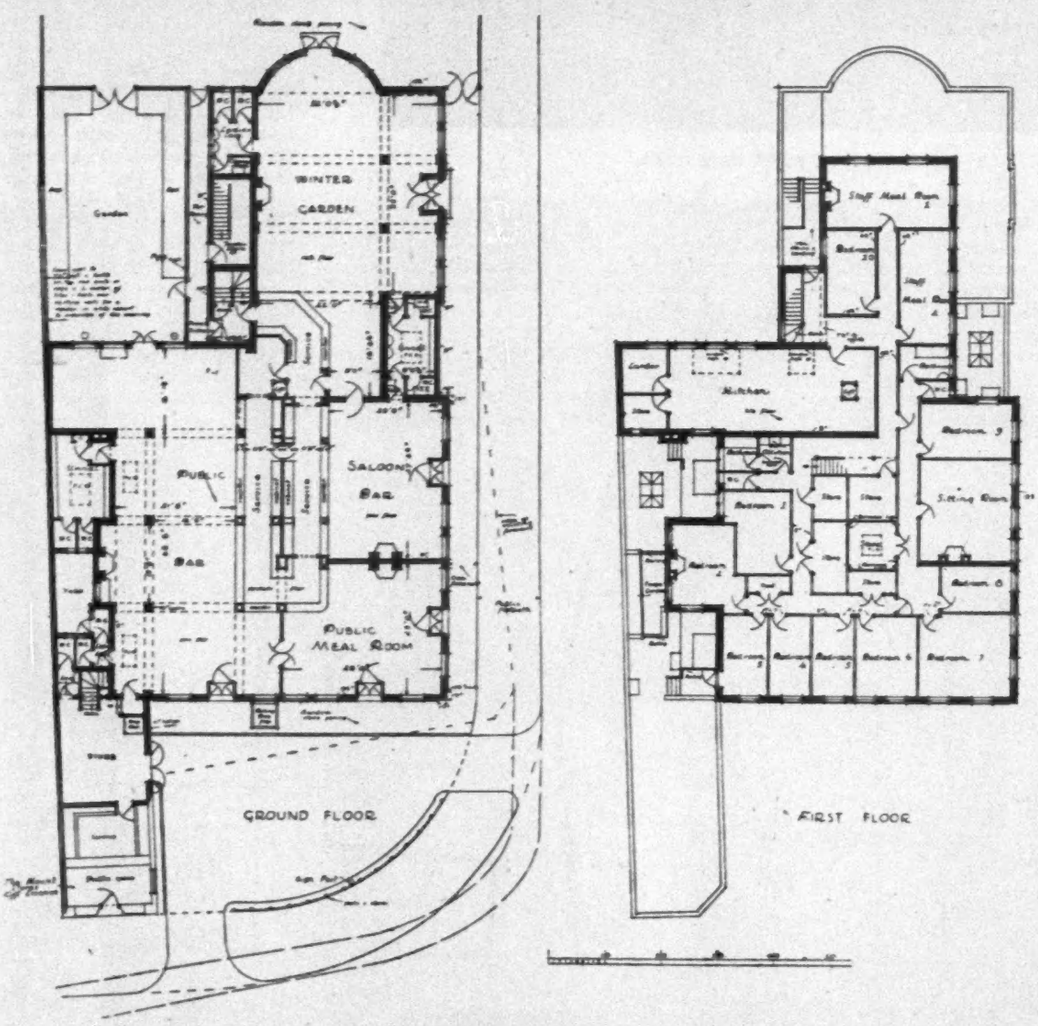


FIRST-FLOOR PLAN.

THE FALCON HOTEL, LINCOLN. MR. T. CECIL HOWITT, D.S.O., F.R.I.B.A., ARCHITECT.

THE "PRINCE ALBERT" PUBLIC HOUSE, CHINGFORD.

MR. ROBERT G. MUIR, F.R.I.B.A., ARCHITECT.



Built for Whitbread & Co., Ltd., this house is in multicoloured brick with tiled roof. The builders were Messrs. C. S. Foster & Sons, Ltd., of Loughton.

WHAT OF THE FUTURE?

By G. M. A.

III.—CONDITIONS OF PRACTICE.

The pre-war architect was generally a worried man, whatever the state of his practice. A few were worried because of the amount of work which heaped itself up in their offices and left to them only the dull organising processes which remain when the real joy of designing and detailing has to be delegated. The remainder were worried because of the small amount of work they had on the board and the meagre income left to them when the office overheads had been paid. This atmosphere of worried existence is not conducive to good architecture, and it is not surprising that good architecture has been scarce. This is the disturbing outcome of such conditions and is of more serious concern than the mere fact that few architects have found it possible to adjust with any real sense of balance the task and their capacity to carry it through.

Now it has been said, and cannot be too frequently repeated, that architecture is a personal process demanding much of the individual in its fulfilment; and it has seemed that much of it has lost that personal touch and the quality which comes with it. There is, of course, a limit to personal output, great as that can be where there is a vast capacity for hard work in the individual concerned. When the limit is reached, it is inevitable that the personal touch must become only thinly spread over the total output, and that the physical limitations of the individual must be economised by an adroit use of skilled subordinates. That busy architects are able to delegate their responsibilities in this way, often on a large scale, and still contrive to preserve a semblance of personal style in their work, is a triumph of organisation, but can hardly be described as architecture at its best.

We thus discover that one of the things which has been wrong with architecture is that it has not been judiciously distributed, and that the same process of redistribution might remove much of the nervous strain of modern practice and create the calmer and more contemplative atmosphere in which good art thrives.

There is a story told, and it may be a true one, for it is typical of formal Victorianism, about a certain eminent architect of those times. He is said to have picked and chosen his jobs and clients, and if he did not feel disposed to take one on he would send the intending client a slip which read: Sir —— regrets that he is unable to accept the commission Mr. ——— has offered him, but has no doubt that Mr. ——— (giving the name and address of a needy neighbour occupying the top floor back) would be glad to act for him in this matter."

Mr. ——— is said to have accepted many commissions from this source, and in time to have become almost as eminent as his patron, even to the acquisition of a title.

Now this all sounds very pompous and patronising, perhaps even humiliating, but behind the story there is some food for thought. It may be assumed that Sir ——— was unwilling to take on more work than he could himself delight in and do justice to, and that his refusals arose from that determination rather than from any snobbish discrimination. Further, it may be assumed that, however tactlessly the job was wished on to his junior, he would not have sent a potential client to other than one who he knew could act with competence. At any rate, the result was good, for Sir ———'s work was always virile and personal throughout his long and distinguished career, while Mr. ——— duly became a knight!

Could we not contrive some similar method, though on less patronising lines, to set to work a greater number of personalities upon the output of work we are likely to have to face? It would involve some form of "grouping" among architects, under which the leading men would invite the alliance of a number of other practices to which the excess work could be transferred when necessary, not in any subordinate way, but merely in a distributive way.

To make such a system work there would have to be some agreement in the profession as to what is the maximum amount of work an architect can handle without losing close touch. Between one man and another this would vary widely, and it would not be possible to lay down a turnover in money value. Probably the best way of regulating the matter would be to limit the number of assistants which one man would be allowed to employ so that the amount of work he could handle would become limited by mere physical capacity.

Such a suggestion is seriously put forward as a likely means of improving the standard of architecture in the active post-war period which is before us, and the fact that such a step could hardly fail to promote a more general state of well-being among architects suggests that we are on the right lines.

We have already resolved not to preconceive the post-war profession as either a salaried one or a private one, and the matter must be viewed from a working, rather than from a paying, point of vantage. In either case, the essence of the scheme is that one architect cannot produce his best architecture unless he can keep a close and detailed touch with it, and that the output of one individual designer should therefore be prescribed and limited.

(To be continued.)

(Continued from foot of column 3)

partner in 1918. He had been surveyor to the Halifax Building Society since 1916, and was valuer for the Huddersfield Industrial Society, Ltd.

Among his buildings were the 1931-35 extension to the Huddersfield Royal Infirmary (with Mr. C. H. Calvert); the Lea Green branch of the Nurses' Home for the same hospital; the Waifs and Strays Society's Home at Mirfield; and recent extensions to All Saints' Home at Almondbury. He also designed much commercial work for the Huddersfield Industrial Society, and many licensed houses. The practice will be carried on by his son, Mr. J. Gordon Berry, A.R.I.B.A.

OBITUARY

Sir William Llewellyn, P.-P.R.A.

The death has taken place, in his 78th year, of Sir William Llewellyn, President of the Royal Academy from 1928 until 1938. The son of a Welsh engineer, Llewellyn was born in Gloucester in 1863, and received his early artistic training under the late Sir E. J. Poynter at the R.C.A., South Kensington. He later visited Paris, and first exhibited at the R.A. in 1885. It was during his presidency that the series of winter retrospective exhibitions of foreign and British art was held and the 1935 exhibition of British Art in Industry.

Malcolm Miller.

The sudden death at the age of 66 of Mr. Harry Malcolm Miller deprives this country of an outstanding architectural sculptor to whom Manchester especially owes much.

Extremely versatile as a carver and modeller in stone, wood, bronze and plaster, Mr. Miller was primarily an interpreter of the conceptions of the architect, yet having a rare capacity for teaching and inspiring a team of craftsmen to execute those ideas which have enriched so many buildings. For over 50 years he had executed all the carvings for Messrs. Thomas Worthington & Sons, some of which, at the Manchester Regiment Chapel in Manchester Cathedral, and at St. Paul's Church, Bury, have recently been illustrated in *The Builder*. Other buildings designed by this firm in which Mr. Miller did work include the war memorial at St. Mary's, Alderley; and the East Lancashire Masonic Temple in Manchester, to which Miller gave his very best. As Mr. J. Hubert Worthington writes: "He certainly was in the first flight for carrying out the architect's ideas in architectural ornament of all kinds."

Mr. Miller left his mark beyond the bounds of his native city—on the Parliament Buildings, Northern Ireland, Barnsley Town Hall, Barnsley Mining and Technical College, and the Preston Municipal Buildings, for Sir Arnold Thornely, while his more recent work for the Worthingtons includes the recent Library for New College, Oxford, and carvings in Garden Buildings for Merton College. In these and other works Miller has left a memorial to himself that will endure.

G. E. Marston.

We regret to record the death of Mr. George Edward Marston, at the age of 58. Director of the Rural Industries Bureau. Mr. Marston was trained as an artist, and in this capacity joined Shackleton's Antarctic Expedition in 1907. With James Murray he described these experiences in "Antarctic Days." In 1914 he was one of the old hands picked by Shackleton for his second expedition, and he was on the "Endurance" when she was crushed in the Weddell Sea and the party escaped to Elephant Island.

Marston joined the Rural Industries Bureau in 1922 as handicrafts adviser, became assistant director under his close friend Mr. J. R. I. Brooke, and director on the latter's death in 1934. He realised that the future of village trades depended on the service which they could render to agriculture, and that his own special task was to help the workers to keep abreast of technical progress.

J. Norman Berry.

The death is reported of Mr. J. Norman Berry, partner in the firm of Joseph Berry & Sons, architects and surveyors, of Huddersfield. Articled to his father, ex-Alderman Joseph Berry, he became a

(Continued at foot of previous column)

WAR DAMAGE BILL

COMMENTS BY MR. DIGBY SOLOMON, F.R.I.B.A.

GENERALLY the phraseology is very involved and very difficult to follow or to understand (see for example Section 10 (2) second paragraph) and Section 10 (4)). Cannot the drafting be simplified?

Why is the contribution assessed on Schedule A (Section 14 (1) (a)) instead of on the value of the building itself, as is the case for fire insurance? Schedule A takes into account both the value of the land as well as the value of the building, whilst the land cannot be damaged by enemy action. The result is that the owner of a property in an expensive street like Bond-street or Lombard-street will be paying a much heavier annual premium than the owner of a similar building in a less expensive street—say, for example, Edgware-road, notwithstanding that the cost of repair of the war damage will be the same in both cases. This seems obviously unfair.

Practically all buildings in Great Britain are insured against fire, and it would seem fairer to base the contribution or premium on the fire insurance value already in force.

Section 4 (2) and (3).

Will the cost of reinstatement—referred to in this section and paragraphs as the "proper cost"—be the figure claimed by the applicant, or will it have to be substantiated by payment vouchers before it is allowed?

What is the position if the owner does not wish—for a variety of reasons—to reinstate exactly as previously existed? Will he receive a cash payment in settlement of his claim for reinstatement, and can he spend this as he chooses, and if so, at what date will this cash payment be calculated? Is this fully covered in Section 4 (2) (b)?

Section 3 (3).

Does this clause make it quite clear that all applicants for claims for damage sustained before the commencement of the Act are entitled to receive payment if they have complied with the conditions set forth in the V.O.W.1 claim form at present in use?

Section 4 (5).

What is meant by the word "prices" in this paragraph? Does it refer to the cost of land and property, or the cost of building materials and labour?

How is this "value" arrived at, and is it not dangerous and unfair to allow the Treasury to make regulations (which are not yet known) laying down how this value is calculated, and particularly to modify or substitute the provisions described in the Section?

Section 5 (1) (a).

What is meant by the words "total loss," because literally a total loss cannot as a rule take place, as the foundations of a building are very unlikely to be destroyed or badly damaged? This term should be clearly defined.

As the clause is drafted, it appears that in many cases an owner would be much better off if he suffered damage to the extent of, say, 99 per cent. of his building rather than a total loss. Is this really intended?

Is it generally realised that in the case of a total loss an owner, notwithstanding that he is liable for the five annual contributions referred to in Section 15, may very likely not receive in compensation a sum anywhere near the "bricks and mortar" value of his property, as on the method laid down in the bill for value payments the difference figure (Section 5 (1) (a)) may have no relationship whatever to the cost of the building?

I think this should be most clearly explained, otherwise when the public realise this after the bill has become law there may be an outcry as to "sharp practice" in the drafting of the bill.

What is the exact meaning of Section 8 (1) and (2) and what is it intended to secure?

If interpreted literally, will it not have the effect of holding up indefinitely a very great deal of urgent reinstatement?

Is not Section 8 (2) (b) very dangerous, as it gives the Treasury power to require an owner in certain circumstances to take a value payment in lieu of a reinstatement payment which, as I have mentioned above, may be a very much smaller figure? As drafted, I think this clause is very unfair without some safeguard for the owner.

What is the reason for Section 8 (3) (a)? Why, after the payment has been agreed, should the owner have to enter into any conditions as to its payment or as to the reconstruction of his property?

Section 9 (1) (a).

Why cannot the payments be made *on* the completion of the works? And in the case of large works, why cannot they be made, either in whole or in part, on the settlement of the claim; otherwise the building owner may not be in funds to enable him to proceed with the work?

Section 9 (1) (b).

This is most unfair and indeterminate. Cannot a definite time period be imposed when a value payment shall be made? Why not on the settlement of the claim?

Section 9 (2).

This seems most unfair. The owner having presumably paid his premiums and the claim having been agreed, why should the Commission have the right in certain circumstances of withholding payment from him?

In the case of a value payment there seems to be nothing laid down in the bill as to the payment of architects' or surveyors' fees (such as are allowed in Section 4 (3) in the case of a cost of works payment) notwithstanding that the owner will in such case of a value payment probably still have to erect his building somewhere and to require the services of an architect or surveyor for such rebuilding.

There seems to be nothing laid down in the bill as to the limit of time by which claims are to be settled by the Government. It is known that even at the present time the number of claims submitted is many hundreds of thousands, and if each claim has to be carefully sifted and checked before being agreed, it will be generations before they will all be dealt with.

I think, therefore, that the bill should lay down some machinery for the prompt settlement of all claims or for some alternative means of payment if a prompt settlement cannot be arrived at.

This, in my opinion, is so vitally important that, if it is not provided for, it will render the whole bill inoperative.

MEMORANDUM BY THE INCORPORATED ASSOCIATION

REPRESENTATIONS in regard to the War Damage Bill have been submitted to the Government by the Incorporated Association of Architects and Surveyors. These, while not representing the opinion of the Association in full detail, do generally direct attention to ways and means of simplifying the procedure, satisfying the owners and occupiers of war-damaged properties, and minimising expense in connection with war damage claims. The suggestions made are designed to make the best use of the existing professional resources, to speed up valuation processes, and to sustain public moral.

Principal Amendments.

The principal amendments suggested are as follows:—

(A) That all persons having any contractual repairing obligation under their lease or tenancy or a lessor (except within the limits of the Rent Restriction Act, 1939) be authorised to carry out First-Aid and Protective repairs to their premises, and to claim and obtain compensation for the proper cost thereof, in addition to any subsequent claim for the reinstatement of war damage.

(i) It is suggested that any person deciding to do First-Aid or Protective repairs should be bound to give to the District Valuer immediate notice of the war damage, and to state generally the First-Aid or Protective work proposed.

(ii) The claims for compensation for such First-Aid or Protective repairs should be lodged within 14 days of the completion thereof.

(iii) Such claims should be paid in full as soon as agreed.

(iv) The District Valuer to have the right to call for receipted builders' accounts for the cost of the First-Aid or Protective works done, and, if considered necessary, there could be a provision giving the District Valuer or Surveyor, or the Borough or Corporation Surveyor, an absolute right to determine previously whether the First-Aid repairs proposed should or should not be carried out or the extent thereof; but it is not thought that this is necessary, as most persons would only be concerned with doing just sufficient work to afford reasonable use of their premises as soon as possible.

(v) The Local Authority to be responsible for deciding the extent and carrying out of any First-Aid or Protective repairs to premises within the limits of the Rent Restriction Act, 1939, and the audited cost thereof paid immediately out of Compensation Fund.

(vi) A person authorised to do and who should have done, but has not done, First-Aid or Protective repairs should not be paid compensation for damage due to his failure to carry out such First-Aid or Protective repairs. Nor shall the premises be at any time regarded as unfit if such condition is due to the failure of the person responsible to carry out such First-Aid or Protective works.

(vii) Whatever is or is not done by a Local Authority by virtue of (v) foregoing shall not prejudice an owner in making a claim and receiving compensation for any war damage to his premises.

(B) That no claims for compensation for war damage shall be made unless and until the premises are rendered unfit (whether

cumulative or otherwise) or destroyed by war damage, or before the expiration of a period of, say, three months after the cessation of hostilities, with the proviso that claims made after such period of three months shall be deposited with the District Valuer within, say, three months after the end of such period.

(i) Claims for war damage which has not rendered premises unfit should be based on prices of building works, etc., ruling at the time of settlement, and 2½ per cent. interest should be paid on any provisionally agreed claim pending the determination and making of any capital payment.

(C) Claims for compensation for premises destroyed or rendered unfit by war damage should be submitted within a limited period of such destruction or unfitness, and provisional settlements should be based on the value of the property in March, 1939, or the diminution of such value.

(i) Interest at the rate of 2½ per cent. per annum from the date of damage should be paid or distributed between the interested parties calculated on the provisionally agreed claim pending a determination and making of any capital payment, or the War Damage Commission requiring any premises to be reinstated.

(ii) In the event of any requirement or order of the Commission, or of it failing to agree any proposal in connection with war damage resulting in loss or additional loss to any interested party, whether directly or indirectly, and whether or not of a consequential nature, such person should have a valid claim for compensation for such loss or additional loss, and the same should be paid in full, subject only to such claim being agreed with the District Valuer.

It is intended that this recommendation should include loss to owners of properties adjoining or near to war-damaged properties, and it is considered that war damage should be interpreted to include damage or loss to any premises arising out of or in consequence of war damage to other properties.

Alternatively, there should be a provision to secure for the nation any ascertainable betterment value arising out of any requirement or order of the Commission.

(D) A definite statutory responsibility should be placed upon certain persons to make claims for compensation for war damage, and it is suggested that the appropriate persons should be the actual building lessee or his assignee and/or the freeholder and/or any other person having a valuable reversionary interest in the property JOINTLY, so that there would be only one claim in each case.

Very few (if any) additional questions would be required to be added to the present V.O.W.1 form. In any event it should be the statutory liability of the parties making the claim to take all necessary steps to provide all relative information which may be required by the Commission.

This should materially relieve the District Valuers and result in a considerable saving of effort, expense and paper. Under present circumstances, and particularly having regard to the Disclaimer Provisions of the Landlord and Tenant (War Damage) Act, 1939, it appears essential, where (as it often the case) the parties do not or cannot agree to make a joint claim, for each to make a separate claim, and even freeholders whose reversions are expectant at some distant date feel that they should lodge claims in order to protect their interests.

(E) As regards the payment of professional fees in respect of claims for and reinstatements of war damage, the following is recommended, viz. :—

(i) In respect of First-Aid repairs it might be left to the discretion of the District Valuer to decide if a professional fee should be allowed on First-Aid or Protective repairs not carried out by a Local Authority, but it is generally thought that a fee in accordance with the Association's scale ought to be allowed where the First-Aid repairs have cost more than, say, £25, and a qualified professional man has been employed thereon; such fee to include the formulation lodgment and settlement of a claim. It is suggested that such a provision would lead to the adoption of a uniform standard and facilitate the carrying out of proper works, and materially assist the District Valuer in his work.

(ii) It is assumed that the definition of *proper cost in* Section 4, Sub-section 3, of the Bill includes quantity surveyors' fees.

(iii) As regards claims for war damage as distinct from First-Aid or Protective repairs, it is considered that one surveyor's or architect's fee in accordance with the Association's scale should be allowed on all final and total loss claims exceeding, say, £25, and that a qualified professional man has been employed thereon.

It is suggested that as there would be no duplication of claims, and that in effect one surveyor or architect would act for all the parties jointly concerned in one claim, it would be just and fair for the Compensation Fund to bear the fees on the claim.

It seems to this Association that the encouragement that would be thereby given to owners to make claims through proper qualified professional men would reduce the work of the district valuers and render settlements more easy.

(iv) If necessary, the Act could specify or the Commission could be empowered to nominate the qualifications of a person who would be regarded as qualified professionally to act in claims for war damage.

(F) With regard to the payment of contributions to the Compensation Fund, it is considered that where hardship were proved, some relief from the payment of instalments of the contribution should be afforded to owners of premises which remained empty for any one full instalment period, and that such instalment(s) should be deferred until such time as the premises are relet or the end of the present emergency, whichever is the sooner. This suggested relief seems essential for evacuated areas.

(G) The Commission should have power to withhold payment of interest or compensation in respect of a claim in which it can be proved that the claimant had not carried out his statutory obligation to protect his premises, *i.e.*, failure to comply with a fire-watching order.

(H) With regard to Clause 2 (1) of the Bill, it is suggested that—

(i) It might be reasonable to reduce the limit of exclusion in respect of First-Aid repairs.

(ii) Also that the present limit of exclusion should, in the case of houses coming within the limits of the Rent Restriction Act, 1939, relate to the aggregation of losses on not exceeding five adjacent houses in the same ownership. This is an attempt to overcome the unfairness in this regard between large and small properties.

IN PARLIAMENT

Reconstruction.

In the House of Lords, LORD REITH said that he had set up a Committee to make an expert examination of the subject of compensation and betterment. The terms of reference of the Committee were as follows :—

"To make an objective analysis of the subject of the payment of compensation and recovery of betterment in respect of public control of the use of land :

"To advise, as a matter of urgency, what steps should be taken now or before the end of the war to prevent the work of reconstruction thereafter being prejudiced. In this connection the Committee are asked to consider (*a*) possible means of stabilising the value of land required for development or redevelopment, and (*b*) any extension or modification of powers to enable such land to be acquired by the public on an equitable basis; to examine the merits and demerits of the methods considered, and to advise what alterations of the existing law would be necessary to enable them to be adopted."

The Committee will consist of Mr. Justice Uthwatt (chairman), Mr. F. R. Evershed, Mr. Gerald Eve, Mr. James Barr, Mr. James Wylie.

He trusted that it would be clear from the latter part of these terms of reference that the Government did not intend that reconstruction after the war should be hampered or prejudiced in any way by speculative transactions and other such individual operations carried out in advance.

War Damage Bill.

Steady progress is being made in Committee with this Bill. SIR KINGSLEY WOOD, the Chancellor of the Exchequer, replying to a number of points raised about the constitution and duties of the War Damage Commission which it is proposed to set up, explained that he would enable to appoint a Commission composed of people who would have the public confidence, and, at the same time, possess the necessary qualifications, which would be of a varying kind. The general policy would be for the Commission to have local offices—in the same towns as the Civil Defence Regional Commissioners—who could deal promptly with claims on the spot. It was important that in the regional offices there should be a Deputy Commissioner able to deal with claims in order to achieve a quick settlement. He would propose that these Deputy Commissioners should be persons of standing and repute in their respective areas. While they would not be members of the Commission, they would be in close touch with it, so as to be informed on outlook and policy. He expected that in this way agreement on most claims would ordinarily be reached. Any aggrieved person would always have the right to refer his case to the Commission itself. He believed that the vast majority of claims would be capable of prompt settlement if there was the right local machinery.

On Clause 2, which deals with payments in respect of war damage, SIR R. GOWER moved to delete the proviso that no payment should be made where the amount of damage was less than £5. He explained that large numbers of working men had invested their savings in houses, and had to pay contributions under the Bill. If the damage to their houses was under £5 they would not receive any return for their contributions. In the vast majority of properties damaged the average amount in question was between £2 and £3.

MR. SILKIN pointed out that some local authorities owned small properties the damage to which might in the aggregate amount to as much as £25,000, although the damage to individual houses might be less than £5.

After debate, SIR D. SOMERVELL, the Attorney-General, said that the limit of £5 was introduced because if smaller claims were allowed there would be caused an immense increase in the cost of administration which would fall on the general body of taxpayers. The CHANCELLOR OF THE EXCHEQUER agreed that there should be a right to aggregate successive damage to a single property for the purpose of claim.

SIR K. WOOD pointed out that, while he was prepared to consider whether any alternative could be found, it was going to be exceedingly difficult to set up the provincial machinery. The whole object of the limit was to lighten the burden of the Commission, and bring about an early settlement of the claim.

The amendment was withdrawn.

Bressey Report.

MR. DOLAND asked the Parliamentary Secretary to the Ministry of Works and Buildings whether, before issuing his forthcoming Report on the reconstruction of works and buildings in London, he would take into consideration the schemes for new main arterial roads leading into and out of London, contained in the Bressey Report.

MR. HICKS said that the recommendations in the Bressey Report would be considered, though the possibilities of development had been altered by subsequent events.

PRECAUTIONS IN FACTORIES AGAINST BOMBING

TOWARDS the end of last year, Sir Ernest Simon (area officer, N.W. Region, Ministry of Aircraft Production) delegated to three experts the task of inspecting factories damaged by bombing and fire, and of reporting on their findings. By permission, we are able to give the following extracts from this document—addressed to Sir Ernest Simon—which appears over the signatures of Mr. D. P. Welman (chairman, Accrington and Blackburn Local Reconstruction Panel), Mr. J. Goldsmith (Divisional Officer, A.F.S., Manchester), and Mr. P. G. Hamilton (Assistant Area Officer, Ministry of Aircraft Production).

THE REPORT.

"At your suggestion we made a tour of some damaged factories and areas in the Midlands, Home Counties and London to obtain first-hand experience of the type of damage and problems with which factories are likely to be faced, and to consider the work of the local reconstruction panels. . . .

"1. **Fire.**—Fire is the worst danger. The damage done by high explosive alone, without fire, is likely to be fairly easily repairable and not seriously to interrupt production, except in the case of multi-storied brick buildings. If fire occurs in a factory there is apt to be nothing to reconstruct. Worse still, a fire immediately provides a beacon to guide and draw bombers; so it is vital that everyone should help extinguish any outbreak of fire very quickly indeed.

"Prevention is far more important than reconstruction. There are a number of precautions which every factory should take at once to reduce damage both from H.E. and fire. In view of the importance of fire, Mr. Goldsmith has prepared a separate report on this subject, which is enclosed. [This report follows.—ED.]

"2. **Glass.**—It is now generally recognised that the bulk of casualties are due to glass. All glass is dangerous. Particularly important is the immediate removal of all non-essential glass from internal partitions (also even picture frames and cupboards). This should be done at once, even if it cannot be replaced by other materials such as wall-boarding till later. Unnecessary glass is an unnecessary danger, and, while no one objects to necessary risks, no one has a right to take unnecessary risks. Glass in roofs should be removed as soon as other roofing material is available. To leave glass behind wire or wall-boarding is dangerous, as the whole roof or partition may blow out and glass will then fly and be as dangerous as if no wall-boarding or covering had been used.

"Several interesting Government leaflets on how to protect glass are available, in particular Air Raid Precautions Memoranda No. 16, September, 1940 (H.M. Stationery Office. 1d.).

"3. **Blast.**—It is important that blast from H.E. should be able to escape. In only two factories have we seen really serious damage done by blast without fire; in these the blast was confined by a gallery at the side of an extensive single-floor factory. If a single-floor factory has a light roof, which can easily blow off and let the blast out, or in the case of a multi-storey factory, has light panels or windows in the walls, which can blow out without destroying the main structural members supporting the roof structure or upper floors, the damage probably will be slight, except from flying glass.

"A great deal of valuable information on the effect of blast has been collected by the Research and Experiment Department of the Ministry of Home Security, and we suggest that anyone desiring information or advice should address requests to Professor Baker, Ministry of Home Security, Princes Risborough, Bucks, who would be glad to give them advice based on the latest available information.

"4. **Importance of Precautions.**—Although Local Reconstruction Panels should be primarily concerned with reconstruction, we feel they should also deal with precautions, because in very many cases elementary precautions against fire and glass have been neglected. Perhaps chairmen and other members of local reconstruction panels will exert their personal influence to persuade neighbours immediately to take the necessary precautions for the safety of their workpeople and factories.

"5. **Panels are Welcome.**—Some Panels appear to be nervous as to the reception they will get if they go immediately to the site of an accident. Our experience is that in nearly all cases the appearance, *as soon as possible*, after a smash of a cool, calm and reassuring helper from a neighbouring factory does receive a warm welcome and can go a very long way to maintaining and even restoring the morale of management.

"Before this trip we had not fully appreciated the great part which the Local Reconstruction Panels can play in maintaining morale, or the vital importance of the fostering of morale in the maintenance of production and in the speed of reconstruction. This now appears to be perhaps the principal way in which a local reconstruction panel can help. The partial destruction of his own factory must necessarily be a great shock to any works manager, particularly if it is accompanied by deaths amongst his workers and friends. If the panel can find the right man to go to help him at that moment the factory manager will be grateful and may well be glad not only for the panel to make arrangements for supply of materials on high priority, for the provision of labour, etc., but even may leave to him completely organisation of the clearing up of debris, removal of glass, etc. It is important not to allow the majority of the workers and staff back to the site of the accident until the actual scene of the explosion has been cleared up or shut off.

FIRE DAMAGE FROM ENEMY ACTION.

Following is Mr. J. Goldsmith's report on Fire :—

"It is clear (states the report) that the most serious loss in production is caused by fire damage; reconstruction in most cases is impossible whereas damage from high explosive is usually more easily remedied."

After examining the causes of fire (*e.g.*, by the effects of high-explosive bombs and incendiary bombs), the author turns to the

Prevention of Fire.—"The following points should be urgently considered :—

"(1) Concrete roofs will keep incendiaries out of multi-storey factories. (They may be dangerous in large, single-storey factories.)

"(2) Shut off gas in factories and houses during raid periods.

"(3) Avoid naked flames in premises.

"(4) Avoid using unsuitable premises for vital work. Really important machines deserve a safe and modern building.

"(5) Remove inflammable material such as tyre dumps or stacks of packing cases from the immediate vicinity of factories. Unavoidable dumps and timber stores must be small and accessible to fire fighters.

"(6) Store in fireproof buildings a little distance from factories, solvents, oils, and all such inflammable materials as wooden aeroplane parts or wooden patterns.

"(7) Use metal containers for oily rags, waste paper, etc.

"(8) Avoid parking cars too near factories.

Fire Fighting.—Nearly every fire can be easily extinguished if attacked immediately it starts. The following points are important :—

"(1) *Fire Watchers.*—They should be trained in fire fighting and the use of all available remedies, and should have a thorough knowledge of all the fire risks in the premises and the method to be used on each. Fire watchers should be on duty during raid periods and at all times when the premises are unoccupied or the factory not working.

"(2) *Sprinklers.*—Fire watchers should be employed even where sprinklers are installed. Fire may start in the roof above the sprinkler installation, or the installation may be put out of action by high-explosive bombs.

"(3) *Fire Instruction.*—Employees should be given elementary instruction in the use of the fire appliances available and what should be used on the different types of risks. Inexpert personnel should not 'deal' with a fire rather than summon the regular brigade.

"(4) *Water.*—Factories should instal 5,000-gallons or even larger tanks of water in suitable positions near the premises, in case the mains are damaged. Light trailer pumps should be installed and personnel trained to use them.

"(5) The local fire authorities must be informed by the factory of any risk vital to the war effort and of any risk needing special treatment. Where there are risks requiring special treatment the factory's own expert should meet the brigade on arrival.

"(6) It might be advisable to have a direct telephone line installed to the local fire station. Strict instructions should be given that the fire brigade must be called at once within a few seconds of an outbreak of fire being discovered.

"(7) The telephone number of the nearest fire station should be known to the necessary personnel. There may be an auxiliary station much nearer than the regular fire station.

"(8) Different parts of the premises should be isolated as is thought advisable. A brick partition *reaching to the roof* is an excellent means of isolation.

"(9) Neighbouring factories should co-operate in the availability of their fire-fighting appliances. Useful information should be circulated.

"(10) See that hydrant points in the neighbourhood are clearly shown.

"(11) Train employees to describe location and details of fire accurately when contacting the brigade, who should be informed *immediately* there is the smallest outbreak of fire.

"**General.**—In any factory or mill it is worth while checking again :—

"(1) Are duplicates of drawings, orders, and other records stored in a different building from the originals?

"(2) Have you emergency water supplies available which cannot be cut off by the same bomb which may destroy the main supply?

"(3) Do the factory water and gas main valves turn off easily, are they rusty, and do all the night staff know where to find them in the dark?

"(4) Are the hydrants and water supplies so clearly marked that firemen from distant stations can find them at night?

"(5) Has part of your neighbours' fire brigade got permission to help you if you need help? Have they ever been shown the risks in your premises?

"(6) Is the number of the nearest fire station written up over the telephone?

"(7) Do the Home Guard or guards of 'protected' factories know that firemen must be let in without a moment's delay, even though the fire may not yet be visible?

"**Conclusion.**—The risk of fire is out of all proportion greater than in pre-war days. Every firm should consult the local fire authorities, and should spend money freely to secure defence against fire. On our recent journey we personally saw a case where the neglect of a single small precaution meant the total destruction by fire of a small but important war factory."

PROTECTION OF BUILDINGS AGAINST FIRE

To the Editor of *The Builder*.

Sir,—The Government's plans for fire-fighting—designed to stop all the gaps in our A.R.P. defences—leave one obvious gap requiring immediate attention. For while more and more men have been set to watch for incendiary bombs and to put out fires which may be started, no action has been taken to defend the buildings themselves against a fire starting.

The first function of a fire-fighter is surely to prevent the fabric of the building or its contents from catching fire. No numbers of Argus-eyed watchers will be able to spot every bomb that drops, and we well know that one undetected bomb may burn down a whole area. To extinguish the fire when one has broken out is secondary. Prevention is a thousand times better than cure, and here the practical and effective method is to treat the building in its vulnerable parts so as to render it resistant to the action of the bomb when struck.

It is tragic to recall that although investigations directed to this end had achieved success many months before war broke out, no application of the method has yet been made on a scale large enough to be worthy of record, notwithstanding the great damage already done by the technique of dropping small incendiary bombs.

Still further to emphasise the inaction or shortsightedness that must finally be held responsible, it should be added that it cannot be blamed on a shortage of the necessary materials, or on their cost. A wide range of protective materials is available. They are cheap and easy to apply. They are manufactured by firms in different parts of the country. For example, there are several special paints or plasters which can be brushed on woodwork, such as joists and rafters, so as to render them resistant to fire, and which can easily be applied by the ordinary householder or office worker. Cheap materials, such as gypsum plaster or asbestos compositions, can be obtained for covering ceiling joists or other structure where protection is advisable. The point is that from one source or another adequate supplies of proofing materials are available for the treatment of the areas which *must* be treated if we are to face with any confidence the outcome of a fresh and larger scale "blitz."

To treat the roof space and top floors of *every* building in the country would obviously be impossible. There is no need for such action. On the other hand, there must be no repetition of December 29 last, when an important warehouse area of the City of London was gutted. The great industrial centres alone, the hearts of which consist of tall and often old buildings, will absorb an army of fire watchers. However carefully this army watches, bombs will fall on to buildings and be undetected until they have started large conflagrations which even massed fire brigades cannot put out. Watching is not enough.

On the other hand, the small incendiary bomb, which is the enemy's most deadly fire-raising weapon, has little penetrative power. It will break the tiles and come through the attic; in many cases it will reach the top floor, but it will seldom come further. Therefore the practical task is to protect the attic and top floor by defending the roof and walls and adding a layer of defence on the floors. This will be sufficient to delay the combustion for from 20-30 minutes, according to circumstances, if not to remove the danger altogether. It will certainly give time for fire watchers to make adequate search and to tackle with success any bombs they find. As an additional safeguard these two floors should be cleared of all obviously combustible material, such as paper or textiles, which should be collected together into one or more rooms which are given a thorough protective treatment, so that even if a bomb arrived in them the fire would be localised.

Experts have worked out the figures of the wall and foot space to be covered in, say, these essential areas of the great industrial centres of Great Britain. The footage is not colossal; it is an area that could easily be treated from the manufacturing resources of the country. Some measure of organisation, if not of control, is necessary. Even if only a certain proportion of the buildings in each city were treated, the whole area would at once become less vulnerable.

With all the present discussion on the best utilisation of man-power, it is indeed surprising that obvious and proved methods of fighting fire by structural protection should not have been exploited to the full, to the saving of inestimable national resources as well as man-power. It is the obvious gap in our A.R.P. defence—a gap most easily filled, but one which so far no official attempt has been made to fill.

J. M. Carroll.

Barningham, Suffolk.

Factories Lighting Regulations, 1941.

The Minister of Labour and National Service has made Regulations prescribing standards of lighting in certain classes of factories. It will be recalled that the Regulations were issued in draft last autumn. The regulations as made are substantially similar to those issued in draft, the main difference being that the list of classes of works of a special character in the schedule to which the Regulations apply only in a somewhat modified way has been extended. The Regulations came into force on February 1. Employers, if they have not already done so, should take steps at once to bring their lighting installations into conformity with the Regulations.

EMERGENCY INQUIRY BUREAU

Questions from readers arising out of War-time difficulties and recent Emergency legislation will be answered by a special staff of contributors. Questions, which should be addressed to the Editor, should be accompanied by a stamped addressed envelope.

War Damage Repairs.

Sir,—*Could you give me a ruling on war damage as in the following case:—*

Business premises are let to a firm on a repairing lease and side plate-glass windows of a showroom are blown out. Should the landlord or tenant bear the cost of the suggested scheme for replacement, i.e., partly boarding up with glass vents? F. M.

A correspondent writes: Under the Landlord and Tenant (War Damage) Act, 1939, neither the landlord nor the tenant is under a liability to make good war damage at all. The making good of war damage is also suspended if such repair is impracticable at a reasonable cost. If the tenant is under an obligation to repair he must report the war damage to his landlord by serving upon him a notice thereof. Since the repair of war damage is deemed to be an improvement, it follows that if the repair is carried out the landlord pays, as being the person who will be compensated. This includes first-aid work.

War Damage: First-Aid Repairs.

Sir,—*In your issue of January 10, in an article by Mr. Frank T. Winter, F.R.I.B.A., on page 61, it is stated that "First-aid repairs should always be included in Form V.O.W.1." In your issue of January 17, on page 89, in a report of a lecture on air-raid damage by Mr. G. H. Smith, F.S.I., it is stated that "as the law stood the cost of temporary work or first-aid repairs could not be recovered."*

We shall be glad to hear the legal interpretation of the law on this point.—E. & L.

A correspondent writes: "First-aid" work should always be included (for compensation purposes) in Form V.O.W.1. It need not be specifically referred to as "first-aid" work, but it is certainly war damage for which, if the work is done, compensation is claimable. This is, of course, a personal opinion of it. There is nothing apparently laid down on the point.

WAR SAVINGS.

At the meeting of the War Savings Committee of the Building, Civil Engineering and Allied Trades, held on Friday, January 31, Mr. George Hicks, M.P., Parliamentary Secretary to the Ministry of Works and Buildings (Chairman) presided.

The action taken by the Committee since the last meeting was confirmed, the Chairman remarking that "a great deal had been accomplished."

The Chairman stated that he had been in touch with Mr. Wolstencroft (the new President of the National Federation of Building Trades Operatives) and Mr. Coppock (the Secretary of the Amalgamated Union of Building Trades Workers of Great Britain and Ireland) as to a further special appeal being made to all affiliated Unions, and that he hoped that the suggestions he had made to them would materialise.

The assistance of the various journals published in the industries concerned was acknowledged with thanks.

It was reported that since the Committee was formed the savings groups in the industries concerned had increased by 50 per cent. The President and staff of the National Savings Committee thanked all the members of the Committee for what had been accomplished.

The position was not satisfactory in respect to workpeople engaged on large Government and other contracts, and methods of improving the position were discussed and agreed upon.

It was resolved that Mr. Wolstencroft and Mr. Coppock be invited to become members of the Committee.

A.R.P. SCHEMES

LONDON.

Banstead.—U.D.C. accepted tender of E. and L. Berg, Ltd., at £186 11s. 6d. for each shelter, at Woodmansterne and Chipstead.

Epsom and Ewell.—T.C. received Ministry of Home Security approval for 40 additional public surface shelters, at £11,200.

Hampstead.—B.C. received M.H. sanction to borrowing £27,033 for air raid precautions purposes.

Lambeth.—B.C. approved £1,704 for shelter accommodation at six places.

London.—L.C.C. recommended: gas-proof rooms at rest centres, £2,500; adaptation of an orphanage as an annexe to a hospital for children, £3,035; protective work at County Hall, £8,000; ventilation of shelters at County Hall, £250; protection of residential schools and homes, £2,200; reconstruction at emergency hospital, £1,580; air raid shelters at King's Canadian school, £600; and provision of shelters at technical and evening institutes and day continuation schools, £3,000.

Malden and Coombe.—T.C. received M.H. sanction to loan as follows: £1,153 for provision of free domestic brick air raid shelters; £2,120 first-aid post.—Contracts placed: Bunks in public air raid shelters, W. H. Gaze and Sons, Limpus and Sons, Ltd., and Park Joinery Works, Ltd.—Boro' Eng. prepared plans for first-aid post, at £700.—M.H. consented to borrowing by council of £1,153 in connection with free domestic shelters.—Contracts placed with J. L. Eve, Ltd., and Aubrey Watson, Ltd., for shelter works.

Wembley.—Boro' Eng. and Sur. to experiment with trench shelters at a park.—Subject to approval of Middlesex C.C., Boro' Eng. and Sur. to strengthen trench shelters in borough.

PROVINCIAL.

Ashby-de-la-Zouch. — U.D.C. propose domestic communal shelters. G. E. Marlow, Sur.

Berwick.—T.C. approved plans by Boro' Eng. for air raid protection at houses.

Border.—R.D.C. to build 46 surface shelters. Plans by Eng. and Sur.

Broughton Moor (Cumberland).—Shelters to be provided by R.D.C.

Burton Latimer. — U.D.C. preparing scheme for community feeding and kitchen centre. Plans by C. A. Borman, Sur.

Castleford. — U.D.C. propose communal feeding and kitchen centre. Plans by C. R. Smith, Sur.

Chester-le-Street. — R.D.C. to provide communal feeding centre. Plans by M. Wilson, architect, Council Offices.

Coventry. — T.C. propose to adapt Butts sports pavilion for use as municipal cafeteria and feeding centre. Plans by D. E. E. Gibson, City Architect, 1a, Warwick-row.

Dewsbury.—E.C. to instal heating apparatus in school shelters and trenches.

Droitwich. — T.C. to make provision for communal feeding and kitchen centres. Plans by R. E. Hulse, Boro' Sur.

Durham. — C.C. approved following: Communal shelter for Medomsley Cottage Homes, at £225. Tenders to be obtained; protection of hutments, Bell and Ridley, Durham £2,080; further protection work at institution, George Gradon and Sons, Durham, £159; protection of another institution, H. H. Haswell, £298 14s.; installing heating and electric lighting at shelters at Durham, Chester-le-Street, Houghton-le-Spring, Stockton, Easington, Sedgefield, Lanchester and Bishop Auckland institutions—cost £800; spending £1,700 on A.R.P. protection at relief offices; and six surface shelters at institution. Cost £1,900, and tenders are to be obtained. Plans by W. J. Merrett, County Sur., 43, Old Elvet, Durham.

Gateshead. — E.C. accepted tenders for school shelters as follows: David Glen, Jarrow (4); J. Sutton and Son, Gateshead (6); R. E. Coleman, Sunderland (1); Sowerbys (Contractors), Ltd., Newcastle (1); C. B. Smith, Eighton Banks, nr. Chester-le-Street, Co. Durham (1).

Great Harwood.—U.D.C. to invite tenders for installation of electric light in shelters.—Council to erect communal shelters on selected sites.

Harrogate. — E.C. to strengthen school shelters, at £1,700.

Hebburn. — E.C. propose more school shelters. Plans by J. Dibble, Sur.—T. A. Page, Son and Bradbury, 75, King-st., South Shields, architects for 29 shelters.

Kidderminster.—E.C. to erect shelters at a school. Plans by J. Hawcroft, Boro' Sur., Gold-st.

Leigh.—T.C. to make provision for communal feeding and kitchen centres. Plans by T. A. Clare, Boro' Sur.

Lindsey.—C.C. to erect six public surface shelters. Plans by P. W. Birkett, County Architect, Lincoln.

Loftus.—U.D.C. to provide shelters.

Macclesfield. — Board of Management of infirmary provisionally accepted tender, at £130, submitted by C. J. Dale and Son, 20, Park Green, for A.R.P. work to buildings and nurses' home.

Morpeth. — R.D.C. approved 144 surface shelters. Plans by T. T. Watson, Council Offices.

Nelson.—T.C. to invite tenders for installation of electric light in school shelters.

Oldham. — Transport Committee propose A.R.P. work at 'bus garages, at £2,100. Plans by G. E. Hardy, Boro' Sur.

Oswaldtwistle. — U.D.C. decided to erect additional surface domestic shelters.

Padiham. — U.D.C. received sanction for 110 domestic surface shelters. Plans by W. R. C. Houston, Sur.

South Shields. — E.C. propose school shelters, at £11,615, and also to treat existing shelters, at £964. Plans by A. G. Richardson, Boro' Sur.

Stalybridge.—T.C. to make provision for communal feeding and kitchen centres.

Stoke-on-Trent. — T.C. prepared scheme for communal feeding and kitchen centres. Plans by A. Burton, City Sur.

Wirksworth.—U.D.C. submitted scheme to Regional Commissioner for domestic surface shelters.

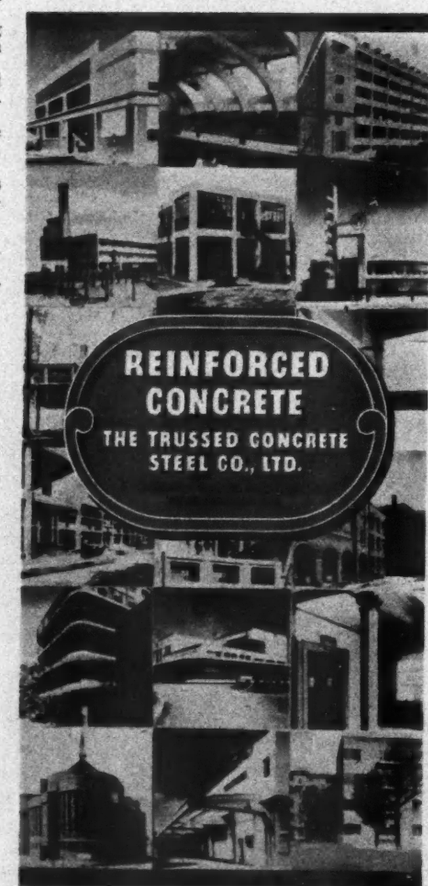
SCOTLAND.

Annan.—Corporation had plans in hand for shelters. A. McLellan, Burgh Architect.

Dalkeith. — Corporation had plans prepared for shelters. A. Frrester, Burgh Architect.

Edinburgh.—Cornoration prepared scheme for communal restaurant. Architect, E. J. MacRae, Council Offices.

Glasgow.—Plans prepared for shelters at art galleries. Thomas Somers, Architect, Office of Public Works.



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CURRENT AND PROPOSED BUILDING WORK*

Ashton-under-Lyne. — W. Postlethwaite, "Cotton Tree" Inn, Old-st., proposes licensed premises, to be known as "Hurst" Hotel, Queen's-rd.

Atcham. — R.D.C. received sanction to borrow £12,000 for houses. J. R. Sockett, Eng. and Sur., 24, St. John's-hill, Shrewsbury.

Barnsley.—T.C. approved: extensions of police and ambulance headquarters for Watch Committee

Brighouse. — T.C. approved: J. Blakeborough and Sons, Ltd., ambulance room, fire station and garage; F. Lapish, air raid shelter; B. Thornton and Sons (1939), Ltd., store shed.

Brighouse.—T.C. propose additional lavatory accommodation at fire station, town hall and in Park-st.—Alterations to gas showrooms, Bailiffe Bridge, for library purposes proposed.

Chester-le-Street. — C. Vaux and Son, brewers, Castle-st., Sunderland, propose building new "Swan" Inn at Waldridge.

Coventry.—T.C. placed contract for one of four proposed guild houses. Plans by D. E. E. Gibson, M.A., City Architect, 1a, Warwick-row.

Dewsbury.—E.C. propose a school canteen, Raventhorpe senior school. Plans by M. H. Forward, Boro' Architect.

Doncaster.—Amalgamated Collieries, Ltd., South-parade, prepared plans for extensions to offices, for Bullcroft Main Colliery, Carcroft.

Haslingden.—T.C. propose 100 houses. R. Taylor, Boro' Eng.

Hinckley.—U.D.C. approved: stable, for Barwell Co-operative Society, Ltd.; shelter, for Turner, Grewcock and Co., Ltd.; shelter, for Harvey, Harvey and Co., Ltd.

Jarrow. — Steel Works Co., Ltd., propose canteen.

Lambeth.—B.C. approved drainage plans: D. E. Harrington, for new factory; L.P.T.B., for three premises.

Macclesfield. — R.D.C. propose timberless houses. Plans by J. H. Walters (L.), architect, 19, Moody-st., Congleton.

Manchester. — E.C. propose extensions to two municipal schools for 250 additional scholars in five classrooms. Plans by J. B. Brez, Sur. to Committee, Education Offices, Deansgate.

Mansfield. — T.C. approved: works additions, Stokes Castings, Ltd.; garage and stores, A. Mason (Contractors), Ltd.

Nottingham. — E.C. propose adaptation of Methodist Church for use as gymnasium. Plans by R. M. Finch, City Eng.

Shrewsbury.—E.C. to provide school canteens at the Old Trinity Schools, St. Mary's R.C. Abbey, C. of E. Schools, Derfald-st. hostel and All Saints' Hall, at £1,015. Plans by A. W. Ward, Boro' Sur.

Sowerby Bridge.—West Riding E.C. propose improvements to two council schools.

Tyldesley.—U.D.C. propose installation of hot-water domestic supply in 110 council houses, at £270.

Tynemouth.—Corporation Emergency Committee to build garage and store near Priory School.

Tynemouth.—M.H. sanctioned borrowing of £777 by T.C. for adaptation work and fireproofing of premises.

Warrington. — T.C. propose provision of municipal cafés and feeding centres. Plans by J. Y. Hughes, Boro' Sur.

Wem. — U.D.C. propose community feeding and kitchen centre. Plans by F. Morcom, Sur.

Wombwell. — West Riding E.C. propose staff lavatories at a council school. Plans by H. Wormald, Education Architect, Wakefield.

NEW BUILDINGS IN LONDON

BECONTREE.—EXCHANGE.—The L.C.C. recommended, subject to the consent of the Minister of Health, a site in Becontree be conveyed to the Government for a women's and juveniles' employment exchange.

WEMBLEY.—ALTERATIONS.—The T.C. has approved alterations to a warehouse, for the Edgware Garden Suburb Trust.

* See also List of Contracts Open.

CONTRACTS OPEN

For some contracts still open, but not included in this list, see previous issues. Those with an asterisk are advertised in this number. The dates at the head of paragraphs are those for the submission of tenders: a dagger (†) denotes closing date for applications; the name and address at the end refer to the person from whom particulars may be obtained.

BUILDING.

FEBRUARY 10.

Clown R.D.C.—Communal shelters in the parishes of Clown, Barlborough and Whitwell, and also the adaptation of existing premises for protection against hostile aircraft. W. J. Callagher, Sur.

Corby U.D.C.—Approximately 1,500 mass concrete or brick baffle walls to entrances of Anderson shelters. N. Bridger-Sage, clerk. Dep. £2 2s.

Cumberland C.C.—Shelters at Workington secondary and technical school. J. H. Haughan (A.), County Architect, 4, Alfred-st. North, Carlisle. Dep. £1.

Maesteg U.D.C.—Erection of domestic shelters in urban area. Eng., Council Offices, Maesteg. Dep. £3 3s.

Manchester T.C.—Taking down old buildings bounded by Medlock-st., Elm-st. and Woollham-pl., Manchester. City Architect, Town Hall. Dep. 10s. 6d.

Pudsey T.C.—Additional brick domestic shelters. Boro' Sur.

FEBRUARY 11.

Arklow U.D.C.—Pump-house for booster plant. P. H. McCarthy and Son, consulting engineers, 26, Lower Leeson-st., Dublin. Dep. £5 5s.

FEBRUARY 12.

Bromyard R.D.C. — Pair of cottages at Heathfields, Cradley. T. S. Watts, New-rd., Bromyard. Dep. £2 2s.

Leeds T.C.—Further domestic surface shelters on housing estates. R. A. H. Livett (A.), Housing Director, 26, Great George-st.

Wallasey C.B. — Garage at fire station. Boro' Eng. Dep. £2 2s.

FEBRUARY 14.

Durham R.D.C.—10 brick surface communal shelters, Bowburn and Coxhoe; adaptation of 119 houses, Bowburn, and adaptation of 221 houses, Coxhoe. Eng. and Sur., Byland Lodge, Hawthorn-ter. Dep. £1 1s.

Sunderland C.B.—Stores building. Electrical Engineering and General Manager, Electricity Offices, Dunning-st. Dep. £1.

FEBRUARY 17.

Plymouth T.C.—Kitchen waste concentrator house. J. Paton Watson, City Eng. and Sur.

St. Albans R.D.C.—Fire station. Eng. and Sur., 43, Upper Lattimore-rd. Dep. £2 2s.

Weston-super-Mare T.C.—Pumping station at Uphill Way, near junction with Uphill-rd. H. A. Brown, Boro' Eng. and Sur. Dep. £1 1s.

FEBRUARY 18.

Dublin Corporation. — 16 flat dwellings and reconstruction of premises at Cook-st. housing area, section No. 3. H. G. Simms, Housing Architect, 5, Wellington-quay. Dep. £5 5s.

FEBRUARY 19.

Tuam. — New national schools, for Christian Brothers. F. D. Shortall, F.S.I., chartered quantity surveyor, 10, Leinster-st., Dublin, C.17. Dep. £5 5s.

FEBRUARY 21.

Tullamore U.D.C. — 82 four-roomed two-storey houses at Clontarf-rd. T. S. Duggan, Town Sur. Dep. £5 5s.

Tyldesley U.D.C.—Strengthening of basement shelters. Sur.

PAINTING, ELECTRIC LIGHTING, HEATING, &c.

FEBRUARY 7.

Stretford T.C. — Demolition of chimney-stack at sanitary dept. S. Massey, Chief Sanitary Inspector.

FEBRUARY 10.

Leeds T.C. — External painting of 4,898 dwellings. R. A. H. Livett (A.), Housing Director, 26, Great George-st, 1. Charge 5s.

Luton T.C.—Installation of electric lighting in about 400 yds. of concrete and brick-lined tunnel shelter. F. Oliver, Assoc.M.Inst.C.E., Boro' Eng., Town Hall. Dep. £2 2s.

West Riding E.C. — Adaptation of room, Meltham Methodist School. A. Beilby, divisional clerk, 29, Standard House, Huddersfield.

FEBRUARY 12.

Burton-upon-Trent C.B.—Painting of gasholders. Gas Eng.

FEBRUARY 14.

Belper U.D.C.—Joiners for making and fixing internal window screens of light construction for a number of dwellings. Leonard Smith (L.), 59, Chapel-st.

FEBRUARY 15.

Tamworth T.C. — External painting of town hall. J. Lewis Bleazard, Boro' Eng. and Sur.

West Riding E.C.—Renovations, Shepley Council School. A. Beilby, divisional clerk, 29, Standard House, Huddersfield.

Winchester R.D.C.—Jobbing works of repair and maintenance to council housing property. G. H. Gardner, clerk, 45, Romsey-rd.

FEBRUARY 18.

Rochester.—Painting bridge. P. T. Baker, Bridge Clerk, 18, Star Hill.

NO DATE.

Wymington Parish Council. — Works in laying out new burial ground, including approach, paths and fencing. Talbot Brown and Fisher, chartered architects, Burystead Place, Wellingborough.

MATERIALS.

The materials for which tenders are invited normally include one or several of the following :—asphalt, bricks brooms, building lime, cast-iron pipes, cement, stoneware pipes, granite chippings, granite kerbs, gravel, gulleys, lime, manhole covers, painters' materials, plumbers' materials, road stone, slates, sand, stone, tar, tarslag and bituminous macadam, timber, and whinstone screenings Readers should obtain full particulars by personal inquiry.

FEBRUARY 8.

Maesteg U.D.C. — D. M. Thomas, Senior Sanitary Inspector.

FEDERATED EMPLOYERS' INSURANCE ASSOCIATION LTD. ESTABLISHED 1904

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FEBRUARY 10.

Bridlington T.C.—Boro' Eng. and Sur.
Cornwall C.C.—County Sur., Truro.
Swadlincote U.D.C. — G. S. Baker, Eng. and Sur.

FEBRUARY 12.

Burnley C.B.—Boro' Eng. and Sur.
Burton-on-Trent T.C.—Boro' Eng. and Sur.

FEBRUARY 14.

Leeds T.C. — F. Nicholls, City Electrical Eng., Electricity Dept., 1, Whitehall-rd.
Northumberland C.C. — Alex. Cheyne, County Sur., Morpeth.
Tottenham T.C.—E. Townson, Town Clerk.

FEBRUARY 15.

East Suffolk C.C.—County Sur., Ipswich.
Isle of Ely C.C.—County Sur., March.

FEBRUARY 17.

Selby R.D.C. — F. Braithwaite, Sur., 22, Park-st.
Swinton and Pendlebury T.C.—Boro' Eng. and Sur.

FEBRUARY 18.

Enfield U.D.C.—Eng. and Sur., 7, Little Park-gdns.

FEBRUARY 19.

Felixstowe U.D.C.—A. Hugh Pavitt, Sur.

FEBRUARY 20.

Frimley and Camberley U.D.C.—Eng. and Sur.

FEBRUARY 21.

Halifax C.B. — D. T. Lloyd Jones, Boro' Eng., Crossley-st.

FEBRUARY 22.

Caernarvonshire C.C.—County Sur., Caernarvon.
Turton U.D.C.—R. Dart, Eng. and Sur.

FEBRUARY 25.

Osgoldcross R.D.C.—Jas. E. White, Eng. and Sur., Tanshelf House, Pontefract.

MARCH 1.

Willenhall U.D.C. — N. D. Martin, M.Inst.M.andCy.E.

MARCH 3.

Shrewsbury T.C.—A. W. Ward, Boro' Sur.

ENGINEERING, IRON AND STEEL.

FEBRUARY 10.

Wembley T.C.—Repaving and kerbing of approximately 60 yd. of roadway, 25 ft. wide, over Manor Farm-rd. bridge, and construction of footbridge over canal. Boro' Treasurer. Dep. £1 1s.

FEBRUARY 15.

Turton U.D.C.—Reconstruction of Higher Barn Clough culvert at Broadhead-rd., Edgworth. Eng. and Sur. Dep. £1 1s.

MARCH 17.

South Africa.—Stoker fired boilers complete with auxiliaries; also steel frame buildings for boiler and turbine houses for Pretoria City Council. Merz and McLellan, consulting engineers, 32, Victoria-st., London, S.W.1. Dep. £2 2s.

ROAD, SEWERAGE AND WATER WORKS.

FEBRUARY 10.

Caerphilly U.D.C.—Making-up, paving, kerbing, sewering, forming, metalling, etc. Rectory-rd. T. H. Richards, Sur. Dep. £2 2s.

FEBRUARY 12.

Mid-Sussex Joint Water Board. — Laying complete of approximately 1,667 yd. of 6-in. and 540 yd. of 4-in. dia. cast-iron pipes. W. H. Ashmole, Eng. and Manager, Boltro-rd., Haywards Heath.

Wanstead and Woodford T.C.—Work in connection with alteration in level of high level syphon and storm water sewer. Armand D. Ward, Boro' Eng. and Sur.

FEBRUARY 14.

Epsom and Ewell T.C. — No. 5 main drainage scheme, comprising two reinforced concrete storm tanks, small sludge pumping station, and short lengths of 30-in. steel and 27-in. concrete tube sewers. Norman Auty, Boro' Eng. and Sur. Dep. £2 2s.

FEBRUARY 17.

Plymouth T.C. Road improvement at Crownhill. J. Paton Watson, City Eng.

RATES OF WAGES IN THE BUILDING TRADE

AS AND FROM 1st FEBRUARY, 1941

[Every endeavour is made to ensure accuracy, but we cannot be responsible for errors]

	Crafts-men.	Lab-ourers.		Crafts-men.	Lab-ourers.		Crafts-men.	Lab-ourers.		Crafts-men.	Lab-ourers.
Aberavon	1/10	1/5½	Clitheroe	1/10	1/5½	Isle of Thanet	1/8	1/3½	Saxmundham	1/6½	1/2½
Aberdare	1/10	1/5½	Cobham (Surrey)	1/9	1/4½	Isle of Wight	1/7½	1/3½	Scarborough	1/9½	1/4½
Abergavenny	1/10	1/5½	Colchester	1/9½	1/4½	Keighley	1/10	1/5½	Scunthorpe	1/10	1/5½
Abingdon	1/8½	1/4	Colwyn Bay	1/9	1/4½	Kenilworth	1/10	1/5½	Selby	1/10	1/5½
Accrington	1/10	1/5½	Congleton	1/9½	1/4½	Kettering	1/10	1/5½	Sevenoaks	1/8½	1/4
Aldeburgh	1/6½	1/2½	Coventry	1/10	1/5½	Kidderminster	1/9½	1/4½	Sheerness	1/8	1/3½
Aldershot	1/8½	1/4	Cranbrook	1/8	1/3½	King's Lynn	1/8	1/3½	Sheffield	1/10	1/5½
Alfreton	1/10	1/5½	Cranleigh	1/8	1/3½	Kirkham	1/10	1/5½	Shipley	1/10	1/5½
Alnwick	1/9½	1/4½	Crawley	1/8	1/3½	Knowle	1/9½	1/4½	Shoeburyness	1/9½	1/4½
Altrincham	1/10	1/5½	Crewe	1/9½	1/4½	Lancaster	1/10	1/5½	Shoreham	1/9	1/4½
Amble	1/9½	1/4½	Cromer	1/7	1/3	Leamington	1/10	1/5½	Shrewsbury	1/9½	1/4½
Amersham	1/8½	1/4	Crowborough	1/8	1/3½	Leatherhead	1/9	1/4½	Sittingbourne	1/8	1/3½
Ammanford	1/10	1/5½	Cuckfield	1/8	1/3½	Leeds	1/10	1/5½	Skegness	1/9	1/4½
Andover	1/8	1/3½	Darlington	1/10	1/5½	Leicester	1/10	1/5½	Sleaford	1/8½	1/4
Ardingley	1/8	1/3½	Darwen	1/10	1/5½	Leighton Buzzard	1/7	1/3	Slough	1/9	1/4½
Arundel	1/8	1/3½	Daventry	1/8½	1/4	Letchworth	1/9	1/4½	Southampton	1/9½	1/4½
Ascot	1/8	1/3½	Deal	1/8	1/3½	Lewes	1/8	1/3½	Southend-on-Sea	1/9½	1/4½
Ashby-de-la-Zouch	1/10	1/5½	Denbigh	1/9	1/4½	Lichfield	1/9	1/4½	Southport	1/10	1/5½
Ashford (Kent)	1/8	1/3½	Derby	1/10	1/5½	Lincoln	1/10	1/5½	South Shields	1/10	1/5½
Ashford (Middlesex)	1/10	1/5½	Devizes	1/7	1/3	Littlehampton	1/8	1/3½	Spalding	1/8	1/3½
Ashington	1/9½	1/4½	Dewsbury	1/10	1/5½	Liverpool	‡§1/11½	¶	Stafford	1/9½	1/4½
Ashtead	1/10	1/5½	Didcot	1/8	1/3½	Llandudno	1/9	1/4½	Staines	1/9	1/4½
Ashton-under-Lyne	1/10	1/5½	Diss	1/6½	1/2½	Llanelly	1/10	1/5½	Stamford	1/9	1/4½
Aylesbury	1/8	1/3½	Doncaster	1/10	1/5½	London—			Stevenage	1/9	1/4½
Aylsham	1/7	1/3	Dorchester	1/7½	1/3½	12m. radius	•1/11½	1/6½	Stockport	1/10	1/5½
Bagshot	1/8	1/3½	Dorking	1/8½	1/4	12-15 m. radius	•1/11	1/6	Stockton-on-Tees	1/10	1/5½
Banbury	1/8	1/3½	Dover	1/8	1/3½	Long Eaton	1/10	1/5½	Stoke-on-Trent	1/10	1/5½
Barnsley	1/10	1/5½	Dovercourt	1/8	1/3½	Longton	1/10	1/5½	Stourbridge	1/10	1/5½
Barnstaple	1/8	1/3½	Driffield	1/8½	1/4	Loughborough	1/10	1/5½	Stourport	1/9½	1/4½
Barrow-in-Furness	1/10	1/5½	Droitwich	1/9½	1/4½	Louth	1/8½	1/4	Stowmarket	1/7	1/3
Barry	1/10	1/5½	Dudley	1/10	1/5½	Lowestoft	1/8	1/3½	Stratford-on-Avon	1/9	1/4½
Basingstoke	1/8	1/3½	Dunstable	1/8½	1/4	Luton	1/9½	1/4½	Stroud	1/9	1/4½
Bath	1/9½	1/4½	Durham City	1/10	1/5½	Macclesfield	1/9½	1/4½	Sunderland	1/10	1/5½
Batley	1/10	1/5½	Eastbourne	1/9	1/4½	Maidenhead	1/9	1/4½	Sutton Coldfield	1/10	1/5½
Beaconsfield	1/8½	1/4	E. Glam. (Mon.Val.)	1/10	1/5½	Maidstone	1/8½	1/4	Swaffham	1/6½	1/2½
Beccles	1/6½	1/2½	East Grinstead	1/8	1/3½	Malvern	1/8½	1/4	Swanage	1/8	1/3½
Bedford	1/9½	1/4½	Edenbridge	1/8	1/3½	Manchester	1/10	1/5½	Swansea	1/10	1/5½
Berkhamsted	1/8	1/3½	Ely	1/7	1/3	Manningtree	1/7	1/3	Swindon	1/8½	1/4
Berwick	1/9½	1/4½	Epping	1/10	1/5½	Mansfield	1/10	1/5½	Tamworth	1/9½	1/4½
Beverley	1/10	1/5½	Exeter	1/9½	1/4½	March	1/7	1/3	Taunton	1/8½	1/4
Bexhill-on-Sea	1/8½	1/4	Exmouth	1/8½	1/4	Margate	1/8	1/3½	Tenterden	1/8	1/3½
Bideford	1/8	1/3½	Fakenham	1/7	1/3	Market Harborough	1/9	1/4½	Thames Haven	1/10	1/5½
Biggleswade	1/8	1/3½	Falmouth	1/8½	1/4	Matlock	1/8½	1/4	Thetford	1/7½	1/3½
Billericay	1/7½	1/3½	Fareham	1/9	1/4½	Melton Constable	1/6½	1/2½	Thorpe Bay	1/9½	1/4½
Birchington	1/8	1/3½	Faversham	1/8	1/3½	Melton Mowbray	1/9	1/4½	Todmorden	1/10	1/5½
Birkenhead	‡§1/11½	¶	Felixstowe	1/9	1/4½	Merthyr	1/10	1/5½	Tonbridge	1/8½	1/4
Birmingham	†1/10	†1/5½	Filey	1/8½	1/4	Middlesbrough	1/10	1/5½	Torquay	1/9½	1/4½
Bishop Auckland	1/10	1/5½	Fleetwood	1/10	1/5½	Middleton	1/10	1/5½	Totnes	1/8	1/3½
Bishops Stortford	1/9	1/4½	Flint	1/10	1/5½	Middlewich	1/9½	1/4½	Trowbridge	1/7	1/3
Blackburn	1/10	1/5½	Folkestone	1/8	1/3½	Milford Haven	1/8½	1/4	Truro	1/7½	1/3½
Blackpool	1/10	1/5½	Frinton-on-Sea	1/8	1/3½	Morecambe	1/10	1/5½	Tunbridge Wells	1/8½	1/4
Blyth	1/10	1/5½	Frome	1/7	1/3	Morley	1/10	1/5½	Uppingham	1/8½	1/4
Bognor Regis	1/8	1/3½	Gainsborough	1/9	1/4½	Mundesley	1/7	1/3	Uttoxeter	1/8½	1/4
Bolton	1/10	1/5½	Gateshead	1/10	1/5½	Nantwich	1/9½	1/4½	Wakefield	1/10	1/5½
Bournemouth	1/9	1/4½	Gillingham (Kent)	1/9	1/4½	Nelson	1/10	1/5½	Walsall	1/10	1/5½
Bracknell	1/8	1/3½	Glossop	1/10	1/5½	Newark-on-Trent	1/9½	1/4½	Walsden	1/10	1/5½
Bradford	1/10	1/5½	Gloucester	1/9½	1/4½	Newbury	1/8	1/3½	Walton-on-Naze	1/8	1/3½
Bradford-on-Avon	1/7	1/3	Godalming	1/8	1/3½	Newcastle-on-Tyne	1/10	1/5½	Ware	1/9½	1/4½
Braintree	1/8	1/3½	Goole	1/10	1/5½	Newcastle-u.-Lyme	1/10	1/5½	Warminster	1/7	1/3
Brentwood	1/9½	1/4½	Gosport	1/9½	1/4½	New Forest	1/8	1/3½	Warrington	1/10	1/5½
Bridgwater	1/8½	1/4	Grantham	1/9	1/4½	Newmarket	1/8	1/3½	Warwick	1/10	1/5½
Bridlington	1/9½	1/4½	Gravesend	1/9½	1/4½	Newport, Mon.	1/10	1/5½	Wellingborough	1/9½	1/4½
Brighouse	1/10	1/5½	Great Yarmouth	1/8	1/3½	Newport Pagnell	1/8	1/3½	Welwyn	1/9	1/4½
Brighton	1/9	1/4½	Grimsby	1/10	1/5½	Northampton	1/10	1/5½	Welwyn Gar. City	1/10	1/5½
Bristol	1/10	1/5½	Guildford	1/8	1/3½	Norwich	1/10	1/5½	Wells (Norfolk)	1/6½	1/2½
Broadstairs	1/8	1/3½	Guilsborough	1/8½	1/4	Nottingham	1/10	1/5½	West Bromwich	1/10	1/5½
Bromsgrove	1/9½	1/4½	Halifax	1/10	1/5½	Nuneaton	1/10	1/5½	Westcliff-on-Sea	1/9½	1/4½
Buckley	1/10	1/5½	Hanley	1/10	1/5½	Oakham	1/8½	1/4	Weston-super-Mare	1/9	1/4½
Bungay	1/6	1/2½	Harpenden	1/9	1/4½	Oldham	1/10	1/5½	Weybridge	1/9	1/4½
Burnham-on-Crouch	1/6½	1/2½	Harrogate	1/10	1/5½	Ormskirk	1/10	1/5½	Weymouth	1/8	1/3½
Burnley	1/10	1/5½	Hartlepools	1/10	1/5½	Oxford	1/9½	1/4½	Whitby	1/9	1/4½
Burslem	1/10	1/5½	Harwich	1/8	1/3½	Oxted	1/8½	1/4	Whitstable	1/8	1/3½
Burton-on-Trent	1/10	1/5½	Haslemere	1/8	1/3½	Paignton	1/9½	1/4½	Widnes	1/10	1/5½
Bury	1/10	1/5½	Hastings	1/8	1/3½	Peterborough	1/9½	1/4½	Wigan	1/10	1/5½
Bury St. Edmunds	1/7½	1/3½	Hatfield	1/9½	1/4½	Plymouth	1/10	1/5½	Wigton	1/8½	1/4
Buxton	1/9½	1/4½	Haywards Heath	1/8	1/3½	Pontefract	1/10	1/5½	Willington	1/10	1/5½
Byfleet	1/8½	1/4	Hednesford	1/9½	1/4½	Pontypridd	1/10	1/5½	Wilmslow	1/10	1/5½
Cambridge	1/10	1/5½	Hemel Hempstead	1/9	1/4½	Port Talbot	1/10	1/5½	Winchester	1/8½	1/4
Canterbury	1/8	1/3½	Henley-on-Thames	1/8	1/3½	Portsmouth	1/9½	1/4½	Windermere	1/8½	1/4
Cardiff	1/10	1/5½	Hereford	1/8	1/3½	Preston	1/10	1/5½	Windsor	1/9	1/4½
Carlisle	1/10	1/5½	Herne Bay	1/8	1/3½	Pulborough	1/8	1/3½	Wisbech	1/7½	1/3½
Carnforth	1/10	1/5½	Hertford	1/9½	1/4½	Ramsgate	1/8	1/3½	Witham	1/8	1/3½
Castleford	1/10	1/5½	Heysham	1/10	1/5½	Reading	1/9½	1/4½	Woking	1/8½	1/4
Caterham	1/10	1/5½	Hitchin	1/9	1/4½	Redditch	1/9½	1/4½	Wokingham	1/8	1/3½
Chard	1/7	1/3	Hoddesdon	1/9½	1/4½	Redhill	1/8½	1/4	Wolverhampton	1/10	1/5½
Chatham	1/9	1/4½	Holt (Norfolk)	1/6½	1/2½	Ripon	1/8½	1/4	Woodbridge	1/7½	1/3½
Chelmsford	1/9½	1/4½	Horley	1/8	1/3½	Rochdale	1/10	1/5½	Worcester	1/9½	1/4½
Cheltenham	1/9	1/4½	Horsham	1/8	1/3½	Rochester	1/9	1/4½	Workington	1/8½	1/4
Chepstow	1/9½	1/4½	Horwich	1/10	1/5½	Rugby	1/10	1/5½	Worksop	1/9½	1/4½
Chertsey	1/9	1/4½	Huddersfield	1/10	1/5½	St. Albans	1/9½	1/4½	Worthing	1/8	1/3½
Chester	1/10	1/5½	Hull	1/10	1/5½	St. Helens	1/10	1/5½	Wrexham	1/9½	1/4½
Chesterfield	1/10	1/5½	Hunstanton	1/7	1/3	St. Neots	1/7½	1/3½	Wroxham	1/7½	1/3½
Chichester	1/8	1/3½	Huntingdon	1/7½	1/3½	Saffron Walden	1/7	1/3	Wycombe	1/9	1/4½
Chorley	1/10	1/5½	Ilfracombe	1/8	1/3½	Salisbury City	1/7½	1/3½	Wymondham	1/7	1/3
Cirencester	1/7½	1/3½	Ingatestone	1/8½	1/4	Salisbury Plain	1/9	1/4½	Yeovil	1/8½	1/4
Clacton	1/8	1/3½	Ipswich	1/9½	1/4½	Sawbridgeworth	1/8½	1/4	York	1/10	1/5½
Cleveleys	1/10	1/5½									

• Painters 1d. less than other Craftsmen. † Plus 2d. per working day. ‡ Plasterers 2/-
¶ Tradesman's Labourers, 1/5½. Navvies and General Labourers 1/5½.
§ Joiners, Plumbers, Bricklayers, Tilers and Masons receive 2/- per week or 4d. per day Tool Money.
NOTE: Carpenters and Joiners in all Towns and Districts (other than Birkenhead and Liverpool) receive 2d per day Tool Allowance

For Building Trade Wages in Scotland, see page 166.

PRICES CURRENT OF MATERIALS*

Note: Owing to the exceptional circumstances which prevail at the present time prices of materials should be confirmed by inquiry. The prices of soft woods are for cash on delivery, and are subject to adjustment when the increased price of £22 per standard for national released stocks is finally fixed. At present linseed oil and genuine spirits of turpentine can only be supplied in cans in small quantities.

BRICKS, &c.

Delivered to site, City and Central Area, Full Lorry Loads. £ s. d.

Best Stocks 5 5 0
Second Hard Stocks 4 16 0

	King's Cross Station per 1,000.	To sites in W.C. District. per 1,000.
2½ in. Phorpres. A discount of 6d. 1,000 only monthly account.	s. d.	s. d.
Pressed	51 9	58 3
Keyed	53 9	60 3
Single Bullnose	71 9	78 3
Rustics	71 9	78 3
Whites	72 3	78 3

White Midhurst Facing Bricks (delivered London site) ..... £ s. d. 3 12 6
Best blue Pressed Staffs. (London Stns.)... 10 2 0
Do. Bullnose (London Stns.) 10 12 0
Blue Wire Cuts (London Stns.) 8 19 6
Best Stourbridge Fire Brick (London Stns.) :—
2½ in. ..... 9 3 6 3 in. 11 1 0

GLAZED BRICKS. (London Stns.)

Best White Ivory and Salt Glazed Stretcher	28 0 0	D'ble Str'tch'rs .. D'ble Headers .. One side&two ends	36 10 0 33 10 0 37 10 0
Headers	27 10 0	Two sides&one end	38 10 0
Quoins, Bullnose and 4½ in. Flats	34 10 0	Splays and Squints	36 0 0

Second Quality, £2 per 1,000 less than best. Cream and buff, £2 extra over white. Other colours. Hard Glaze, £5 10s. extra over white.

PARTITION SLABS.

Delivered London Area.

"PHORPRES" HOLLOW PARTITION BLOCKS.

2" per yd. sup.	2 3	3" per yd. sup.	2 9
2½" " " ..	2 6	4" " " ..	3 1

CLINKER CONCRETE.

2" per yd. sup.	1 6	3" per yd. sup.	2 0
2½" " "	1 8	4" " "	2 4

CRANHAM TERRA COTTA.

2" per yd. sup.	3 0	3" per yd. sup.	3 8
2½" " "	3 6	4" " "	4 7

HEMPSTEAD—KEYED TWO SIDES.

12" x 9" x 2"	2 6	12" x 9" x 3"	3 0
12" x 9" x 2½"	2 9	12" x 9" x 4"	3 9

Per yard super d/d. Free on site, London.

SAND.

Thames Ballast	8	6 per yd.	delivered 2 miles radius Paddington.
Pit Ballast	8	6 " "	
Washed Sand	10	0 " "	
Washed Sand	13	0 " "	
¼ in. Shingle	8	0 " "	
¾ in. Broken Brick	12	6 " "	
Pan Breeze	8	3 " "	

CEMENT.

Best British Portland Cement. Standard Specification. delivered London Area. £ s. d.

4 ton loads and upwards site. ..... Per ton 2 9 6
1 ton to 4 tons site 2 12 6
Alongside Vauxhall in 80 ton lots 2 7 0
"Ferrocrete" Rapid Hardening Cement—
4 ton loads and upwards site 2 15 6
1 ton to 4 tons site 2 18 6
Alongside Vauxhall in 80 ton lots 2 13 0
Stored in Reserved Bins at works. 1/6 per ton extra.
"Aquacrete" Water Repellent, "Blue Circle" cement, 30/- per ton extra on ordinary "Blue Circle" prices.
"Colorcrete" Nos. 1 and 2. Coloured Rapid Hardening Portland Cement 3 19 6
"Colorcrete" not rapid hardening, according to colour, from £7 to £15 10s. per ton.
"Snowcrete" White Portland Cement 9 5 0
Super Cement (Waterproof), *bags extra* 3 19 6

NOTE.—Paper bags will be charged at the rate of 6/- nett per ton. Jute sacks charged 1s. 9d. nett each and 1/6 nett each allowed if returned to works within two weeks, in good condition.

Carriage will be paid by makers on returned empty jute sacks.

Roman Cement £7 5 Keene's Cement, White £6 10 0
Parian Cement 6 10 " " Pink 6 5 0
Cementone Colours for cement according to tints per cwt. from £2 16s. 0d.

PLASTER.

	£ s. d.		£ s. d.
Coarse, Pink	3 12 6	Sirapite, Coarse ..	4 3 0
" White ..	4 0 0	" Finish ..	4 11 0
Pioneer	4 3 0		

Above prices for 4-ton loads and over London Area.

Best Ground Blue		Grey Stone Lime	2 15 0
Lias Lime	3 0 0	Chalk Lime	2 15 0
Granite Chippings	1 10 0	Hair per cwt. ..	2 7 6

NOTE.—Sacks are charged 1s. 9d. each, and credited 1s. 6d., if returned in good condition within three months, carriage paid.

Stourbridge Fireclay in paper bags, £2 12 6 in 6-ton lots at railway depot.

STONE.

BATH STONE.—Delivered in railway trucks at Westbourne Park, Paddington, G.W.R., or South Lambeth, G.W.R., per ft. cube ..... s. d. 3 3½

BERE STONE—RANDOM BLOCK—
Free on rail at Seaton Station.. per ft. cube 2 3
Delivered free on rail Nine Elms, S.R. " 3 1½
Selected approximate size one way, 1d. per cubic ft. extra, selected approximately three sizes or for special work, 3d. per cubic ft. extra.

PORTLAND STONE—

	s. d.
Brown Whitbed, in random blocks of 20 ft. average, delivered in railway trucks at Nine Elms, S. Rly., South Lambeth Station, G.W.R., and Westbourne Park, Paddington, G.W.R., per ft. cube	4 7
Do. do. delivered on road waggons as above stations, per ft. cube	4 7
White basebed, 3d. per ft. cube extra.	

NOTE.—1d. per ft. cube extra for every ft. over 20 ft. *average* and ½d. beyond 30 ft.

HOPTON-WOOD STONE—
F.O.R. Quarries, Wirksworth, Derbyshire, Random blocks from 10 ft. and over P.ft.cb. 14 0
Sawn two sides 22 6

HOPTON-WOOD STONE—
Sawn three or four sides 27 0

YORK STONE, BLUE—*Robin Hood Quality.*
Delivered at any Goods Station, London.

6 in. sawn two sides landings to sizes (under 30 ft. super) .....per ft.super	5 6
6 in. rubbed two sides, ditto .... "	6 3
3 in. sawn two sides slabs (random sizes) ..... "	2 7
2 in. to 2½ in. sawn one side slabs (random sizes) (paving) ..... "	1 8½
1½ in. to 2 in. ditto ..... "	1 4½

HARD YORK—
Delivered at any Goods Station, London.

Scrappled random blocks. .....per ft.cube	6 10
6 in. sawn two sides landings to sizes (under 40 ft. super) .....per ft.super	5 7½
6 in. rubbed two sides, ditto .... "	6 9
4 in. sawn two sides slabs (random sizes) ..... "	3 5
3 in. ditto ditto ..... "	2 8
2 in. self-faced random flags .....per yd.super	8 9

CAST STONE.

Delivered in London area in full van loads, per ft. cube: Plain, 7s. 6d. Moulded, 8s. 6d. Sills, 10s. 0d.

HARD WOOD.

1 INCH AND UP THICK.

	£ s. d.
Average price for prime quality.	
Dry Austrian Wainscot, per ft. cube	0 17 0
Dry American and/or Japanese Figured Oak, per ft. cube .....10 6 to	0 13 0
Dry American and/or Japanese plain Oak, per ft. cube	0 11 6
Dry sq. edged Honduras Mahogany, per ft. cube.....	0 15 0
Dry log-cut Honduras Mahogany, per ft. cube..... 12 6 to	0 16 0
Dry Cuba Mahogany, per ft. cube	0 18 0
Dry Teak, per ft. cube	0 14 0
Dry American Whitewood, per ft. cube	0 10 6
Dry Australian Walnut, per ft. cube	0 19 0
Dry Queensland Silky Oak, per ft. cube	0 12 6
Dry African Mahogany, per ft. cube	0 10 0
Dry African Whitewood, per ft. cube	0 8 0
Dry English Wainscot Oak, per ft. cube	0 16 0
Best Scotch Glue, per cwt.	3 0 0
Liquid Glue, per cwt. .....4 7 0 to	5 10 0

SOFT WOOD.

MERCHANTABLE BRITISH COLUMBIAN PINE.

	Minimum. £ s. d.	Maximum. £ s. d.
Scantlings in imported sizes, 2 in. by 3 in. to 4 in. by 11 in.	43 10 0	53 0 0

Having Secured the Contract— What about the Steel Scaffolding?

TUBULAR

—S & C—

SCAFFOLDING

For the lowest Prices apply to the Oldest Firm in the Scaffolding Trade.

STEPHENS & CARTER LTD.

The British Steel Scaffolding Co.

731-761, HARROW RD., N.W.10.

Telephone No. Ladbroke 1191 (6 lines).

PLANED BOARDS.

PRIME CLEAR BRITISH COLUMBIAN PINE.

	Per standard. £ s. d.
1 in. by 11 in. } 1 in. by 9 in. }	67 10 0

	Per square. s. d.
1 in. plain edge flooring	53 0
1¼ in. ditto	66 6
1 in. tongued and grooved	53 0
1¼ in. ditto	66 6

MATCHING.

	Per square. s. d.
⅝ in.	37 6
¾ in.	42 0
1 in.	55 0

SLATES.

First quality slates from Penrhyn or Portmadoc, carriage paid in full truck loads to London Rate Station. Per 1,000 actual.

	£ s. d.		£ s. d.
24 by 12	39 7 6	18 by 10	21 15 0
22 by 12	33 0 0	18 by 9	20 0 0
22 by 11	30 5 0	16 by 10	19 0 0
20 by 12	29 10 0	16 by 8	15 5 0
20 by 10	27 2 6		

TILES.

Delivered at London rate stations in full truck loads of not less than 6 tons..... Per 1,000 f.o.r. London

	£ s. d.
Best machine-made tiles from Broseley or Staffordshire district.....	£5 10 0
Ditto hand-made ditto	6 10 0
Ornamental ditto	6 15 0
Hip and valley tiles { Hand-made ..... (per dozen) { Machine-made	0 11 6 0 11 0

METALS.

JOISTS, GIRDERS, &c., TO LONDON STATION PER TON—

R.S. Joists, cut and fitted	£22 10 0
Plain Compound Girders	25 0 0
" Stanchions	27 10 0
In Roof Work	32 10 0

NOTE.—These prices are for standard pieces and not special pieces of an awkward nature.

MILD STEEL ROUNDS.—To London Stations, per ton.

Diameter.	£ s. d.	Diameter.	£ s. d.
¼ in.	22 5 0	⅝ in. to ¾ in.	20 15 0
½ in.	21 5 0	⅞ in. to 2¼ in. ..	20 5 0

WROUGHT TUBES AND FITTINGS.
Deliveries from works.
Deliveries from London stock further 2½% gross.

Fittings.

	Tubes.	Tubulars. 10/17 and 19/24	Flanges.	
	¼"/6" %	¼"/6" %	½"/2" %	2½"/6" %
Light weight ..	55½	—	48	51½
Heavy weight	48½	48½	40½	41½
Galv.lightweight	44½	—	39½	40½
Galv.heavyweight	35½	35½	31½	30½

	Fittings. %
	58
	50½
	49½
	41½

Tubes and tubulars sizes ⅛"/1" inclusive, charged extra of 5% less gross.
Fittings. Figs. 25/34 5% less gross discount.
Terms.—Nett cash end of month following date of invoice. Carriage paid on lots of £10 nett value and over.

C.I. HALF-ROUND GUTTERS—London Prices ex Works.

per yd. in 6 ft. lengths.	Gutters.	Nozzles.	Stop ends.
3 in.	1/4½	1/1	4d.
3½ in.	1/5½	1/2½	4d.
4 in.	1/5½	1/4½	6½d.
4½ in.	1/6½	1/8	7½d.
5 in.	1/10½	1/11½	8d.

O.G. GUTTERS.

3 in.	1/9	1/5½	4½d.
3½ in.	1/11½	1/5½	6d.
4 in.	1/11½	1/6½	7d.
4½ in.	2/0½	1/9½	8d.
5 in.	2/6	2/0½	9½d.

RAIN WATER PIPES.

Per yd. in 6 ft.	Pipe.	Bends. Stock angles.	Branches.
2 in.	2/0½	1/4½	2/0
2½ in.	2/1½	1/6½	2/4½
3 in.	2/7½	1/11½	2/10½
3½ in.	3/1	2/3½	3/4½
4 in.	3/6½	2/9½	4/0½

NETT PRICES.
Tonnage allowance—4-ton lots, 5 per cent.
2-ton lots, 2½ per cent.

L.C.C. COATED SOIL PIPES.—London Prices, ex Stock.

Per yd. in 6 ft.	Pipe.	Bends.	Branches.
2 in.	3/4½	2/4½	2/10½
2½ in.	4/0½	2/7½	3/7½
3 in.	4/4½	2/10½	4/3½
3½ in.	4/5½	3/7½	5/0½
4 in.	4/10	4/0½	5/9½

L.C.C. COATED DRAIN PIPE.

3 in. per yd. in 9 ft.	Pipe.	Bends.	Branches.
	5/5	6/3	9/11

cwt. qr. lbs.			
4 in. 1 1 20. ..	7/11	7/1	12/6
5 in. 1 2 22. ..	9/7	12/9	19/3
6 in. 2 0 6	11/5	14/8	25/8

Gaskin, 75/- per cwt.

* The information given on this page has been specially compiled for THE BUILDER, and is copyright. The aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the highest or lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information. Prices are subject to 2½ per cent. cash discount.

PRICES CURRENT OF MATERIALS—(contd).

	Per ton basis in London. £ s. d.			£ s. d.
IRON.—Staffordshire Crown, Merchant quality	17 2 6	to	18 7 6	
IRON.—Staffordshire Marked Bars	20 0 0	to	22 0 0	
Mild Steel Bars	19 12 0	to	21 2 0	
Mild Steel Hoops	21 6 0	to	21 16 0	
	Ex Merchant's Stock, per ton (two-ton lots).			
Soft Steel Sheets, C.R. and C.A.—				
20 gauge	24 17 6	to	27 5 0	
24 gauge	25 2 6	to	27 0 0	
26 gauge	25 17 6	to	27 15 0	
Galvanised Corrugated Sheets, 6 ft. to 9 ft.—				
20 gauge	27 1 3	to	28 6 3	
24 gauge	27 11 3	to	28 16 3	
26 gauge	28 16 3	to	30 11 3	
Galvanised Flat Sheets, C.R. and C.A.—				
20 gauge	28 11 3	to	30 8 9	
24 gauge	29 1 3	to	30 18 9	
26 gauge	30 6 3	to	32 3 9	
	Per ton. £ s. d.			£ s. d.
Cut Nails, 3 in. and up	26 0 0	to	27 10 0	
	ALL NETT.			

METAL WINDOWS.—Standard sizes, suitable for complete houses, including all fittings, painting two coats, and delivery to job, average price about 1s. 4d. to 1s. 7d. per foot super.

COPPER.

Seamless copper tubes (basis)	per lb.	1/3
Strong sheet	"	1/6
Thin sheet	"	1/7
Copper nails	"	1/6
" wire	"	1/6

PLUMBERS' BRASS WORK.

Delivered in London.
Stamped by Met. Water Board.

CRUTCH HEAD S.D. BIB COCKS FOR IRON. EASY CLEAN.

½ in.	¾ in.
34/-	53/- per doz.

CHROMIUM PLATED TOILET S.D. BIB COCKS FOR IRON. EASY CLEAN.

½ in.	¾ in.
50/-	68/- per doz.

S.D. STOP COCKS FOR IRON.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
37/6	53/-	87/-	202/-	288/-	460/- per doz.

S.D.S. COCKS WITH TWO UNIONS FOR LEAD.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
47/-	75/6	120/-	226/-	360/-	588/- per doz.

DOUBLE NUT BOILER SCREWS.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
8/10	9/9	15/9	27/3	44/-	63/6 per doz.

HEAVY CROYDON BALL VALVES. SCREW IRON.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.	
45/-	73/-	120/-	204/-	260/-	per doz.

CAPS AND SCREWS.

1½ in.	1¾ in.	2 in.	3 in.	3½ in.	4 in.
10/6	12/9	19/3	34/-	48/-	53/- per doz.

BRASS SLEEVES.

1½ in.	2 in.	3 in.	3½ in.	4 in.
9/9	12/6	22/6	33/-	42/- per doz.

DRAWN LEAD TRAPS WITH BRASS CLEANING SCREWS.

	1¼ in.	1½ in.	2 in.	3 in.	
8 lb. Lead P...	29/-	38/-	54/-	93/-	per doz.
8 lb. Lead S...	36/-	42/-	67/-	120/-	"

SOLDER.—Plumbers, 1/5. Tinmen's, 1/8. Blow pipe, 1/10 per lb.

PAINTS, &c.

		£ s. d.
Raw Linseed Oil, in drums	per gallon	0 5 4
Boiled " " in drums	"	0 5 7
Turpentine, in drums (10 gals.)	"	0 5 3
Genuine Ground English White Lead, per ton (In not less than 5-cwt. casks).		61 0 0
Extra for 1-cwt. kegs over 5-cwt. casks is 2/9 cwt.		
GENUINE WHITE LEAD PAINT "Father Thames," "Nine Elms," "Park," "Supremus," "St. Paul's," "Morganswyte," "Polacco," "J" Brand, and other best brands (in 14 lb. tins) not less than 5-cwt. lots	per ton delivered	83 10 0
Red Lead, Dry (packages extra)	per ton	52 0 0
Best Linseed Oil Putty (1 ton lots)	per cwt.	0 17 1½
Size, XD quality	fkn.	0 3 6
Turpentine substitute can be obtained and prices vary according to the quality from 2/9 gallon upwards.		
		£ s. d.
SNOWCEM CEMENT PAINT	per cwt.	2 16 0
C.M.C. CAMOUFLAGE PAINT	per cwt.	2 16 0

VARNISHES, &c.

		Per gallon.
Oak Varnish	Outside	0 14 0
Fine do.	"	0 16 0
Fine Copal	"	0 18 0
Pale Copal	"	1 0 0
Pale Opal Carriage	"	1 4 0
Best do.	"	1 12 0
Floor Varnish	Inside	0 18 0
Fine Pale Paper	"	0 18 0
Fine Copal Cabinet	"	1 2 0
Fine Copal Flatting	"	1 0 0
Hard Drying Oak	"	0 18 0
Fine Hard Drying Oak	"	0 19 6
Fine Copal Varnish	"	1 0 6
Pale do.	"	1 12 0
Best do.	"	1 2 6
Best Japan Gold Size		1 12 6
Best Black Japan		0 10 0
Oak and Mahogany Stain (water)		0 12 0
Brunswick Black		0 7 6
Berlin Black		0 14 0
Knotting (patent)		0 15 0
French and Brush Polish		0 12 0
Liquid Dryers in Terebene		0 9 0
Cuirass Black Enamel		0 7 0

GLASS.

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.

ORDINARY GLAZING QUALITY (O.Q.) AND SELECTED GLAZING QUALITY (S.Q.).

PER FOOT SUPER.

In sizes not exceeding 80 in. long or 48 in. wide or 110 united inches.

			O.Q.	S.Q.
18 oz.	in 300 ft.	cases	2½d.	2¾d.
24 oz.	" 200 ft.	"	3½d.	4d.
26 oz.	" 200 ft.	"	3¾d.	4¼d.
32 oz.	" 200 ft.	"	5½d.	6½d.
24 oz.	" 300 ft.	"	3¾d.	3¾d.
26 oz.	" 300 ft.	"	3¾d.	4¼d.
32 oz.	" 300 ft.	"	5¼d.	6¼d.
18 oz. Obscured Sheet				5½d.
24 oz. Obscured Sheet				6½d.
Fluted, 21 oz.				9d.
Enamelled, 18 oz.				5½d.
" 24 oz.				6½d.

Extra price according to size and substance for squares cut from stock.

ENGLISH ROLLED PLATE AND FIGURED CATHEDRAL, ETC., IN CUT SIZES. Per ft.

Rolled plate, ¼ in.	5½d.
Rough cast double rolled, ⅜ in.	6½d.
Rough cast double rolled, ½ in.	6¾d.
Figured rolled, and Cathedral, white	6¾d.
Figured rolled and Cathedral, tinted	9½d.
Rolled Sheet	6d.
Reeded, Broad Reeded, Cross Reeded and Chevron Reeded, ¼ in. thick	0 10½

Rolled plate is the same price as rough cast double rolled.

	Per ft. s. d.
Wire Rolled, ¼ in. thick	0 9½
Wired Cast, ¼ in. thick	0 9½
Georgian Wired Cast	0 10
"Calorex" Sheet, 21 oz.	2 6
" " 32 oz.	4 0
" Cast, ¼ in. thick	0 10
" " ⅜ in. thick	1 0
" " ½ in. thick	1 2
Non Actinic Glass, ¼ in. thick	0 9½
" " ⅜ in. thick	1 0
" " ½ in. thick	1 2

"VITA" GLASS.

	Per ft. s. d.
"Vita" Plate Glass, about 3/32 thick	
To 7 ft. super	5 0
Over 7 ft. super	7 6
"Vita" Sheet Glass, about 18/20 oz.	2 0
Cathedral "Vita" Glass :	
¼" thickness	2 0
3/16" "	3 0
3/16" Georgian Wired "Vita" Glass	3 6

LEAD, &c.

(Delivered in London.)	Per ton. £ s. d.
LEAD.—Sheet, English, 4 lb. and up	34 10 0
Pipe in coils	34 0 0
Soil pipe	39 10 0
Compo pipe	41 5 0

NOTE.—Country delivery, 20/- per ton extra, lots under 3 cwt. 4/- per cwt. extra and over 3 cwt. and under 5 cwt., 2/6 per cwt. extra. Cut to sizes, 4/- per cwt. extra.

Old lead, ex London area, at Mills ..... per ton £18 0 0

BUILDING TRADE WAGES IN SCOTLAND

Following are grade rates authorised by the Scottish N.J.C. from February 1. Every endeavour is made to ensure accuracy, but we cannot be responsible for errors that may occur.

Grade Classification	A	A¹	A²	A³	B	B¹
Craftsmen	1/10½	1/10	1/9½	1/9	1/8½	1/8
Labourers	1/5	1/4½	1/4½	1/4	1/3½	1/3½

Aberdeen	A	Dumfriesshire	A³	Inverness	*	Perthshire	A¹
Ayrshire	A	Dundee	A	Inverurie	A¹	Peterhead	A¹
Banff	B	Dunoon	A	Kincardineshire	A²	Renfrewshire	A
Berwickshire	A¹	East Fife	A	Kinross-shire	A	Rothesay	A
Bridge of Allan	A	East Lothian	A	Lanarkshire	A	Roxburghshire	A¹
Broughty Ferry	A	Edinburgh	A	Midlothian	A	St. Andrews	A
Clackmannanshire	A	Fifeshire	A	Monifieth	A	Selkirkshire	A¹
Doune	A	Forfarshire	A³	Moray and Nairn	B	Stewartry	A¹
Dumbarton	A	Glasgow	A	Newport	A	Stirlingshire	A
Dumbartonshire	A	Greenock	A	Peeblesshire	A³	Stornoway	A³
Dumfries	A¹	Hamilton	A	Perth	A	Tayport	A
						West Lothian	A

* This town has its own rates: Masons, 1/8½; Carpenters, 1/8½; Slaters, 1/8½; Plumbers, 1/9; Plasterers, 1/9½ but 1/10 is paid owing to the scarcity at present; Painters, 1/8½ and Labourers, 1/4.

The information given in this table is copyright. Rates of wages in England and Wales are given on page 164.

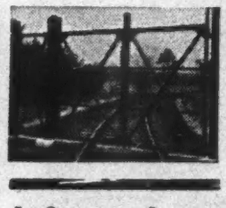
THE SCOTTISH BUILDER

NEW BUILDINGS IN SCOTLAND.

GLASGOW.—BUILDING.—The Corporation has a sewage scheme, etc., in hand, at £6,000. Plans by Mr. Thomas Somers, Engineer, George-sq.—Plans prepared for 122 houses by Mr. William McNab, Housing Architect, Directors' Office, Trongate.

GLASGOW.—BUILDING.—Plans for additions to the Stow College, at £1,000, prepared by Mr. John McNab, 29, Bath-st.—Plans prepared and approved for alterations and additions at Kelvindale Laundry. Messrs. Miller and Black, architects, 132, West Regent-st.—Plans prepared for restoration scheme after fire at Messrs. Avery's, Ltd. Messrs. H. and D. Barclay, architects, 121, West Regent-st.

PAISLEY. — PREMISES. — From plans by their own architects, the United Thread Mills, Ltd., 155, St. Vincent-st., Glasgow, to erect new storage buildings.



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BUILDING OPERATIVES' WELFARE.

THE Building Operations and Works of Engineering Construction (Welfare and Safety Provisions) Order, 1941, dated January 8, 1941, made by the Minister of Labour and National Service under Regulation 60 of the Defence (General) Regulations, 1939, has now been issued (H.M. Stationery Office, 1d. net). The Order provides that: Any contractor undertaking building operations or works of engineering construction in the construction of a munitions factory, aerodrome, defence works or similar works required on behalf of the Crown shall, if so directed on behalf of the Minister by the Chief Inspector of Factories or by any other Inspector of Factories expressly authorised by the Minister to give directions under this Order, make arrangements to the satisfaction of the Inspector by way of the employment of such numbers of supervisory officers as the Inspector may specify for one or both of the following services, namely :—

(*a*) supervision of the welfare of persons employed by him in such operations or works,

(*b*) supervision of the safety of such persons on the site of the works.

Any such contractor shall, if so directed by the Chief or other Inspector of Factories authorised as aforesaid, make arrangements to secure the provision on or in the immediate vicinity of the site of the works of sufficient and suitable canteen facilities where hot meals can be purchased by the workers.

FIG. 1.—RESULT OF TEST ON UNPROTECTED GLASS.

FIG. 2.—RESULT OF TEST ON GLASS REINFORCED WITH "LASSOBAND" TAPE.

TRADE NEWS

Blast Tests on Glass.

We referred in a recent issue to a series of blast tests on glass—using various forms of protective nets, viscose films and adhesive tapes—which formed the subject of a film prepared by Herts Pharmaceuticals, Ltd.

This company has now issued a report on the film which will repay study by those concerned with taking of precautions against the shattering and dispersal of glass windows and roofs in factories and other buildings. The report reaches the following conclusion: "It is impracticable to state specifically which method of treatment is the best; in fact, each material has advantages which render it more suitable in some cases than in others. If it is essential that a very high proportion of light should be transmitted through the treated glass, a transparent self-adhesive tape immediately suggests itself. Where a partial black-out is immaterial, a self-adhesive cloth tape is to be preferred." The photographs of two of the tests undertaken show (Fig. 1) the result upon unprotected 24-oz. window-glass, and (Fig. 2) upon the same weight glass reinforced by cross bands of 2-in. "Lassoband" self-adhesive tape. Information regarding this and other "anti-scatter" treatments may be obtained from the company at Bessemer-road, Welwyn Garden City, Herts.

Facing Bricks for Hitchin C.C. School.

In connection with the illustrations in our issue for January 24 of the Hitchin C.C. Mixed School, designed by Mr. Julian Leathart, F.R.I.B.A., the suppliers of the golden russet and ivory hand-made "Tudor-styl" bricks used for facing were Messrs. G. Tucker and Son, Ltd., of Loughborough.

Sound Control in Buildings.

Celotex, Ltd., have recently issued a useful handbook which deals fully and practically with the latest practice in acoustical correction and sound control. This "Blue Book," as it is called, besides dealing with the general subject, outlines the properties and applications of the "Acousti-Celotex" tile. For the architect it might well be called "Acoustics without Tears," for this all-important but complicated subject is reduced to the simplest terms compatible with a thorough survey of the field; this last includes acoustical correction for theatres, lecture-rooms, etc.; noise quieting in offices and factories; sound insulation; and acoustical treatment of ventilating ducts—this last section containing some new data of particular interest. Not least valuable is a section containing photographs of many types of building in which "Acousti-Celotex" tiles have been used. Copies of this "Blue Book" have already been sent to many architects and technicians, but copies can still be obtained from the Celotex Company at North Circular-road, Stonebridge Park, N.W.10, upon mentioning this journal.

A Coming of Age.

The year just closed has seen the coming-of-age of a firm which, though founded in 1919, dates back to a meeting in France during the last war between two Royal Engineers, Messrs. J. G. Ambrose, M.C., M.Inst. C.E., and C. B. Mathews, M.Inst.C.E. Together they devised the concrete "pill-box," which later came to be standardised for use throughout territory occupied by the B.E.F. and the American army in France. In the process they became fast friends, and 1919 saw the formation of Concrete, Ltd.

The history of this firm is contained in a little booklet just issued from Grand Buildings, Trafalgar-square, W.C.2, and interesting reading it makes, too. Started in Leeds, the business—which specialised in the manufacture of concrete floors—was soon transferred to London. Landmarks were the invention in 1935 of the pneumatic core system of making "Bison" hollow floors; the "Bison" system of concrete-lined trenches; and the "Bison" mobile fort, a "pill-box" on wheels invented by Mr. Mathews. Now, to meet the ever-increasing Departmental needs, Concrete, Ltd., is producing pneumatic core floors for all kinds of buildings. We congratulate the firm on the progress it has made, and hope that its next anniversary may see it lending its weight to the arts of peace.

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TENDERS

The Editor welcomes authentic information for this feature from architects, surveyors or contractors. Items should reach 4, Catherine-street, Aldwych, W.C.2, not later than Wednesday morning.

Tenders for A.R.P. work will be found under "A.R.P. Schemes."

* Denotes *accepted.*
† Denotes *provisionally accepted.*
‡ Denotes *recommended for acceptance.*
§ Denotes *accepted subject to modification.*
¶ Denotes *accepted by H.M. Government departments.*

Batley.—(1) Internal renovations to Healey junior and infants' school, Birstall Schools, Education Offices, and (2) Hanging Heaton schools, for E.C. T. Mossop, Boro' Sur.: (1) *C. P. Greenwood, and (2) *E. Hodgkinson. (Both of Batley.)

Dewsbury.—Semi-permanent building at a senior school, for E.C. M. H. Forward, Boro' Architect: *Walter West & Son, Ltd., Highgate, Dewsbury, £770 16s.

Durham.—Works for C.C.: Adaptation of premises as auxiliary hospital. W. J. Merrett, County Sur., 43, Old Elvet, Durham: *Dixon Elliott & Sons, Durham, £324; renovations at Guardians' Committee's offices, *G. D. McPhee, Durham, £127; upgrading works at institution, *G. W. Addison, Barnard Castle, £248 14s.

Friern Barnet.—Wood-block flooring at new municipal offices, for U.D.C.: *Acme Flooring Co., £1,457 4s. 2d.

Liverpool.—Works for City Council: Repairs to roof of premises, *Val de Travers Asphalte Paving Co., Ltd., North House, North John-st., Liverpool, 2; protection of turbo-alternator sets and auxiliary plant at a power station, *Northern Steel Scaffolds, Ltd., Doublegrip-works, Barlow Moor-rd., Manchester, 20.

¶London (War Dept.).—Works contracts placed for week ended Jan. 25:—

Building work: Day & Son (Builders), Ltd., 130-2, Terrance-rd., Walton-on-Thames; Angus Construction Co., Ltd., Rosefield-pl., Dundee; W. Sindall, Gloucester-st., Cambridge; Johnson & Bailey, Ltd., 51/51a, Norfolk-st., Cambridge; and J. B. Packer, "Nythfa," Hengoed, near Cardiff.

Hutting (erection): Collen Bros, Ltd., Hanover-st., Portadown, Co. Armagh; Leyland Construction Co., Ltd., Leyland; F. Milton & Son, Ltd., Witley, Surrey; George Duncan & Son, St. James's-pl., Inverurie (two contracts); E. S. Moss, Ltd., 159, Brent-st., Hendon, N.W.4; J. Custerson, Station-st., Saffron Walden.

Miscellaneous work: P. Fitzpatrick, Mountpanther, Clough, Co. Down; J. Bisset & Sons, Ltd., Back Hilton-rd., Aberdeen; and Brown, Fraser, Ltd., Glasgow.

Hutments: G. & J. Seddon, Ltd., 5 and 7, Manchester-rd. West, Little Hulton, near Bolton.

Constructional work: Thos Feather & Co., Ltd., 4, Grange-rd., Darlington.

Manchester.—Alterations and additions to "Nag's Head" hotel, Barton-rd., and Davyhulme Circle, Davyhulme, for Groves & Whitnall, Ltd., Regent-rd. Brewery, Salford. Architect's Dept., 274, Deansgate: *Brew Bros., Mill-la., Cadishead, nr. Manchester.

Manchester.—(1) Works chimney, and (2) cleansing station, for Richard Johnson & Nephew, Ltd.: (1) *Thomas Warrington, Bennett-st., Hyde, and (2) *J. Gerrard & Sons, Ltd., Pendlebury-rd., Swinton.

Manchester. — Boiler-house to works, for Evans, Bellhouse & Co., Ltd.: *W. L. Gray (1933), Ltd., Darley-st., Farnworth, nr. Bolton.

Newcastle-upon-Tyne.—Extensions to premises, for A.F.S. garages: *P. Oxnard, Wingrove-rd., Newcastle.

Newcastle-upon-Tyne. — Strong-room at premises of Marton & Co.: *Stephen Easten, Ltd., Westgate Grange, Westgate-rd., Newcastle.

Rochdale.—Extensions to cooking centre, for T.C. S. H. Morgan, M.Inst.C.E., Boro' Sur. : *R. & T. Howarth, Ltd., Crossfield Works, Norwich-st., Rochdale.

Salford.—Works for T.C. : Work for protection at power station, *Wm. Gornall & Sons, Ltd., Salford, £844; additional repairs to six steel chimneys at power station, *Babcock & Wilcox, Ltd., London, £800.

Swinton.—Structural alterations to licensed premises, for Walker & Homfray, Ltd., Woodside Brewery, Eccles New-rd., Salford. Plans prepared in Architect's Dept., Brewery Offices : *Fearnley & Sons, Ltd., Eccles New-rd., Salford.

Tynemouth.—Adaptation of flat above fire station as bathrooms and lavatories for fire brigade, for T.C. D. M. O'Herlihy, Boro' Eng., 19, Howard-st., North Shields : *Direct labour, £182.

Warwick.—Temporary mortuary at cemetery, for T.C. R. Wormell, Boro' Eng. and Sur., 20, The Butts :—

W. Tarver	£325 6 7
Bocock & Grossey	282 0 0
*Crosbie & Atkins, 46, Saltisford	259 2 6

(All of Warwick.)

Wood Green.—Works for T.C. : Clearance of sites of demolished property, *E. & A. Jenkin, Ltd., *C. S. Cooper, *Ernest Knifton, Ltd., *C. J. Pilgrim & Sons, and *Gausdens (Wood Green), Ltd. ; repairs to Lordship-la. school, *E. & A. Jenkin, Ltd. ; Demolition of properties, *J. H. Tripp, Ltd.

OFFICIAL NOTIFICATIONS

Home-grown Hardwoods for National Stock.

The Ministry of Supply announces that Timber Control desires to accumulate as quickly as possible a national stock of 8,000,000 cubic feet of home-grown hardwoods in accordance with specification, and in the following proportions :—

20% ash	1,600,000	cubic feet.
25% oak	2,000,000	,, ,,
10% Spanish chestnut	800,000	,, ,,
30% beech	2,400,000	,, ,,
15% elm	1,200,000	,, ,,

Of the oak, Spanish chestnut and beech not less than 50 per cent. is to be square-edged.

Merchants are asked to sell to the Control not less than 50 per cent of their production of first-quality hardwoods. The Timber Control is prepared to purchase up to the same quantity of second quality from each individual supplier. In the placing of orders existing contracts under licence will be taken into consideration.

All firms engaged in the conversion of home-grown timber can obtain copies of the specification or further information from : Ministry of Supply, Timber Control Department, Department 111, Branch 6, Clifton Down Hotel, Bristol, 8.

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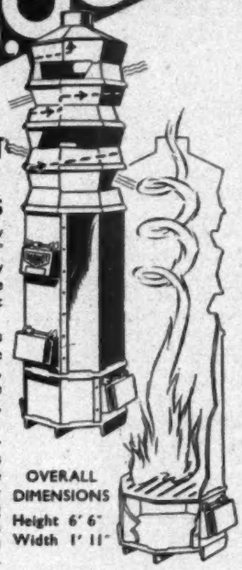

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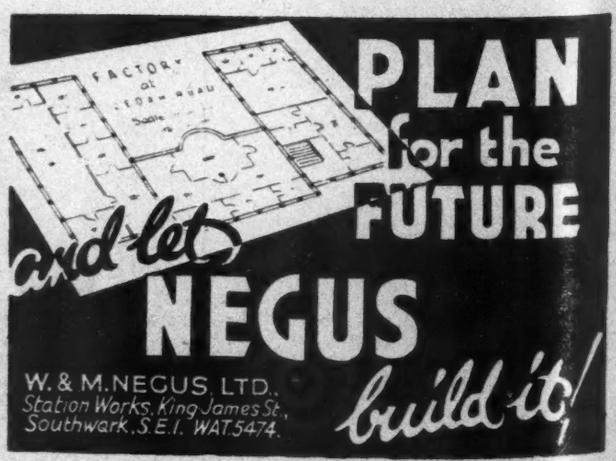
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